

VM9022HDN

Installation and Operation Manual



CONTENTS

Thank you for choosing a Jensen product. We hope you will find the instructions in this owner's manual clear and easy to follow. If you take a few minutes to look through it, you'll learn how to use all the features of your new Jensen VM9022HDN Mobile Multimedia Receiver for maximum enjoyment.

VM9022HDN

| | |
|---------------------------------|----|
| Preparation..... | 1 |
| Installation | 5 |
| Anti-Theft Feature | 7 |
| Controls and Indicators | 8 |
| Remote Control | 10 |
| Using the TFT Monitor | 13 |
| Operating Instructions | 14 |
| Multi-ZONE Operation..... | 16 |
| Setup Menu | 17 |
| Tuner Operation | 20 |
| Satellite Radio Operation | 22 |
| DVD/VCD Video Operation | 24 |
| DVD/CD Audio Operation | 27 |
| MP3/WMA Operation | 28 |
| iPod Operation | 30 |
| Bluetooth Operation | 32 |
| Troubleshooting | 35 |
| Specifications | 38 |

Navigation Module

| | |
|--|----|
| Introduction | 39 |
| Safety Information | 40 |
| Getting Started | 41 |
| Main Navigation Features | 42 |
| Choosing and Finding Locations | 44 |
| Navigating | 48 |
| Planning a Route..... | 49 |
| Managing your Address Book..... | 50 |
| Settings Menu | 52 |
| Navigation Module Troubleshooting..... | 55 |

PREPARATION

Congratulations on your purchase of the Jensen VM9022HDN Mobile Multimedia Receiver.

It's a good idea to read all of the instructions before beginning the installation. We recommend having your Jensen VM9022HDN installed by a reputable installation shop.

Features

DVD

- Aspect Ratio – Cinema and Normal
- Fast Forward / Reverse – 2X, 4X, 6X and 8X
- Play, Pause, Stop, Next Chapter and Previous Chapter
- ESP – 2MB Buffer

CD / MP3 / WMA

- ID3 Tag Compatible
- Directory Search (MP3 / WMA Only)
- Direct Track Access via Remote control
- Burn up to 1500 MP3 and WMA Files onto a DVD+R / RW
- Audible Forward / Reverse Track Search
- Random, Repeat and Intro
- Play, Pause, Stop, Next Track and Previous Track
- ESP – 2MB Buffer

Tuner

- HD Radio Tuner*
- USA / Europe Frequency Spacing
- 24 Station Presets (18 FM / 6 AM)
- Auto Stereo / Mono
- Auto Store
- RDS – Radio Data System

Satellite Radio Ready

- Compatible with XM Tuners (Sold Separately)
- Requires XMDJEN100 or JXMC cables for XMD1000 only (Sold Separately)
- Satellite Channel Name, Artist, Song and Categories displayed on TFT Screen

iPod

- **jLinkDirect** - High Speed Direct Connect Interface to Access iPod Playlists, Artists, Albums, Songs, Photos** and Video**. (** Requires Gen 5.5 or earlier Photo or Video iPod. iPhone, iPod Touch, iPod Classic, and iPod Nano with Video will only play music files.)
- Power Management Charges iPod while Connected
- Requires jLinkCable iPod Interface Cable (included)

MediaLink⁴

- Under Dash Interface Allows Portable Media Devices to be Connected
- MediaLink⁴ Includes the Following Connectivity:
 - USB – Supports Flash Memory and Hard Drives with Audio Files
 - LinkDirect iPod Connectivity
 - 3.5mm Audio Only Input
 - RCA Audio /Video Input

Chassis

- 2.0 DIN (Import / ISO-DIN Mountable)
- Motorized Swing-Down LCD Screen
- 6.5" TFT Active Matrix LCD with Anti-Glare Coating
- Screen Tilt / Angle Adjustment
- Heat Management System - Forced Air-Cooling to Keep the Chip-Sets Operating at Nominal Temperatures

General

- Bluetooth – Bluetooth hands-free profile for safety / convenience and A2DP profile for streaming music from a PDA / PMP
- Built-in Navigation System
- 38-Key Infrared Remote Control with 5-way Joystick
- Two Composite Video Outputs for Additional Screens
- Compatible with MZ7-TFT Rear Seat Monitors with Touch Screen Interface
- Two Audio /Video Auxiliary Inputs
- 200-Ohm Preamp Line Output – All Audio Channels
- 4VRMS Line Output – All Channels
- Rotary Encoder Audio Control
- Seven-Band EQ with Eight Preset EQ Curves
- Spectrum Analyzer
- Front, Rear, Center and Subwoofer Line Output
- Built-In Integrated Center Channel Amplifier (40 Watts X 1)
- Subwoofer Crossover and Phase Control
- Dolby Digital / Pro-Logic II
- Programmable Volume Control
- Rear Camera Input (Normal and Mirror Image View)
- 5-Way Joystick
- SWC Interface – Compatible with PAC adapter SWI-PS Steering Wheel Control Interface, sold separately

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Optional Equipment

- **Rear Camera**
The VM9022HDN is "camera ready." Before accessing any camera features, you must purchase and install a rear video camera. Once the rear camera is connected and operating properly, the CAMERA source mode will become active. While the camera is not installed, the CAMERA option appears gray, indicating the function is not available.
- **Satellite Radio Tuner**
See "Satellite Radio Operation" on page 22.
- **jLinkCable and iPod**
See "MP3/WMA Operation" on page 28.
- **Bluetooth Phone**
See "Bluetooth Operation" on page 32.
- **3.5mm to 3.5mm Audio Cable**
Sold separately at various retailers.

What's in the Box

1. Left and Right Double DIN Mounting Brackets
2. Double DIN Half Sleeve Install Bracket
3. Remote Control with Battery
4. Rear Support Mounting Strap
5. jLink iPod Cable
6. HD Radio Module
7. HD Radio Module Connecting DIN cable
8. HD Radio Module Mounting Hardware
9. Two Custom Cosmetic Trim Rings
10. Parking Brake Wire
11. MediaLink
12. Screen Cleaning Cloth
13. M5x6 and M3x4 Screws to Mount Radio to Brackets
14. Speaker Output Harness
15. Power Input Harness
16. Center Channel Wire Harness
17. GPS Antenna
18. Back-Up Map Data DVD
19. 2GB SD Card
20. Navigation Instructions

Tools and Supplies

You will need these tools and supplies to install your VM9022HDN:

- Torx type, flat-head and Philips screwdrivers
- Wire cutters and strippers
- Tools to remove existing radio (screwdriver, socket wrench set or other tools)
- Electrical tape
- Crimping tool
- Volt meter/test light
- Crimp connections
- 18 gauge wire for power connections
- 16 – 18 gauge speaker wire

Disconnecting the Battery

To prevent a short circuit, be sure to turn off the ignition and remove the negative (-) battery cable prior to installation.

NOTE: If the VM9022HDN is to be installed in a car equipped with an on-board drive, do not disconnect the battery cable. If the cable is disconnected, the computer memory may be lost. Under these conditions, use extra caution during installation to avoid causing a short circuit.

WARNING! Only connect the unit to a 12-volt power supply with proper grounding.

WARNING! Never install this unit where operation and viewing could interfere with safe driving conditions.

WARNING! To reduce the risk of a traffic accident (except when using for rear view video camera), never use the video display function while driving the vehicle. This is a violation of federal law.

WARNING! Never disassemble or adjust the unit.

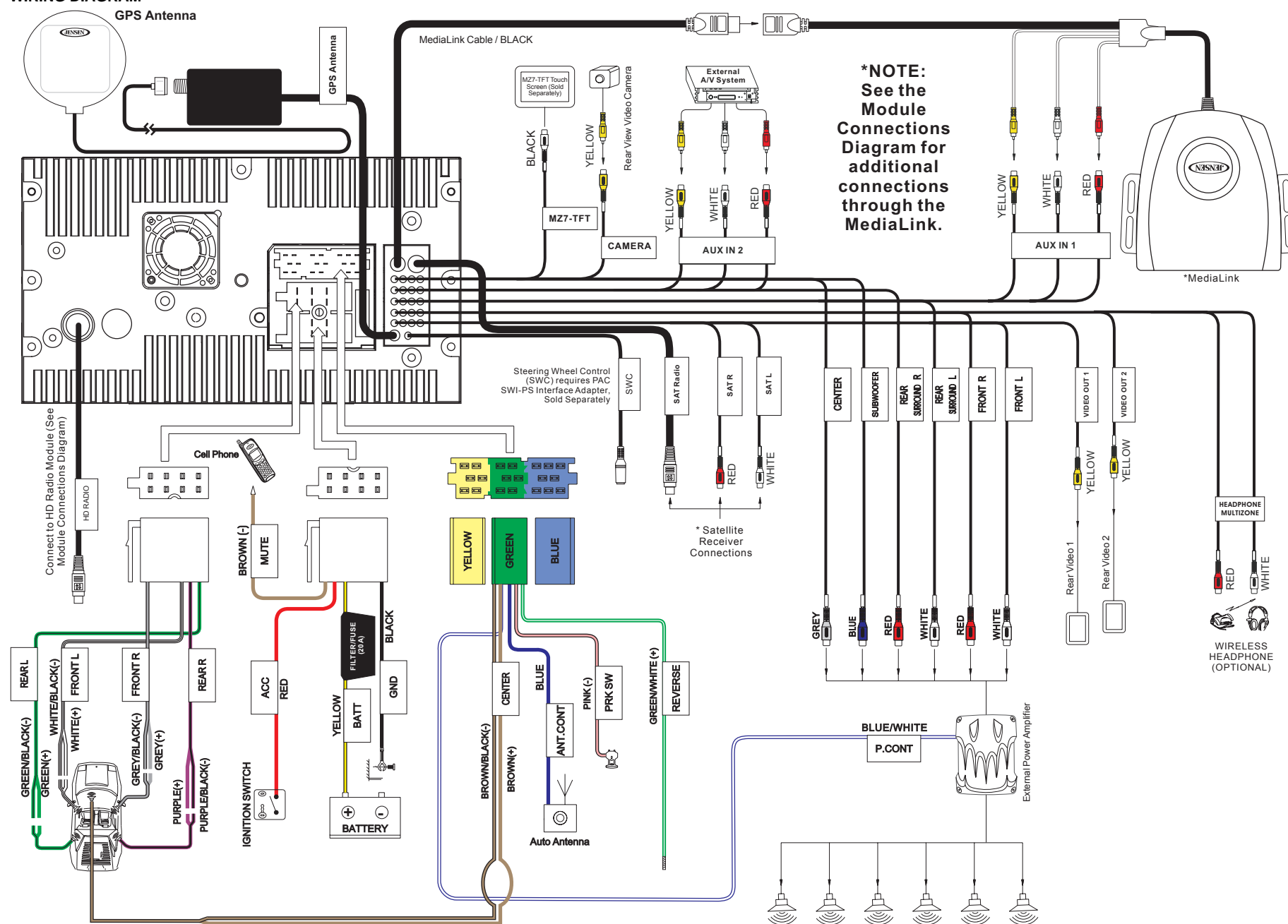
WARNING! To prevent injury from shock or fire, never expose this unit to moisture or water.

WARNING! Never use irregular discs.

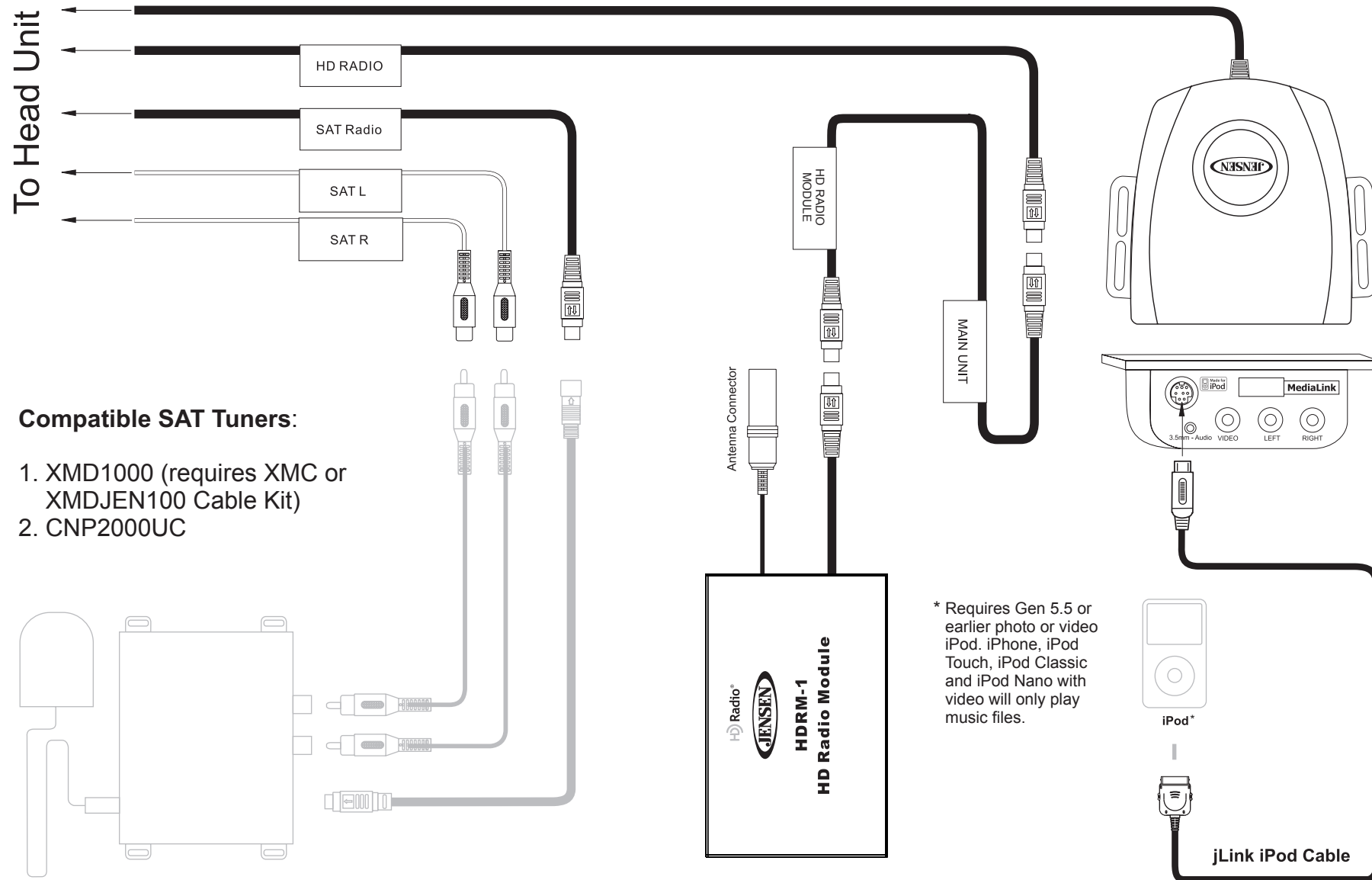
WARNING! To prevent damage to the mechanism inside this unit, avoid impact to the TFT monitor.

WARNING! Using an improper fuse may cause damage to the unit and result in a fire.

WIRING DIAGRAM



MODULE CONNECTIONS



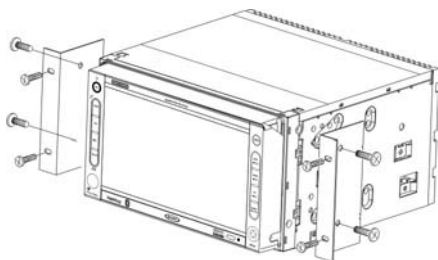
INSTALLATION

ISO DIN Installation

This unit is designed to fit into a 2.0 DIN dashboard opening, found in many imported cars. The unit has threaded holes in the chassis side panels which may be used with the original factory mounting brackets of some Toyota, Nissan, Mitsubishi, Isuzu, Hyundai and Honda vehicles to mount the radio to the dashboard. Please consult with your local car stereo specialty shop for assistance on this type of installation.

1. Remove the existing factory radio from the dashboard or center console mounting. Save all hardware and brackets as they will be used to mount the new radio.
2. Remove the factory mounting brackets and hardware from the existing radio and attach them to the new radio.

ISO INSTALLATION



CAUTION: Do not exceed M5 X 6MM screw size. Longer screws may touch and damage components inside the chassis.

3. Place the radio in front of the dashboard opening so the wiring can be brought through the mounting sleeve. Follow the wiring diagram carefully and make certain all connections are secure and insulated with wire nuts or electrical tape. After completing the wiring connections, plug the ISO connectors into the mating sockets on the rear of the chassis. Turn the unit on to confirm operation (vehicle ignition switch must be "on"). If the unit does not operate, re-check all wiring until the problem is corrected.
4. Mount the new radio assembly to the dashboard or center console using the reverse procedure in step 1.

CAUTION: For proper operation of the CD player, the chassis must be mounted within 30° of horizontal. Make sure the unit is mounted within this limitation.

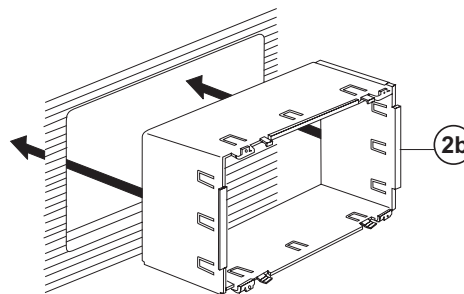
NOTE: It is the end-users responsibility to install and operate this unit in a manner in accordance with local, state and federal laws. The PARKING BRAKE wire **MUST BE CONNECTED** as directed in the manual.

CAUTION: Do not block the cooling fan exit. If blocked, the unit may overheat and become damaged.

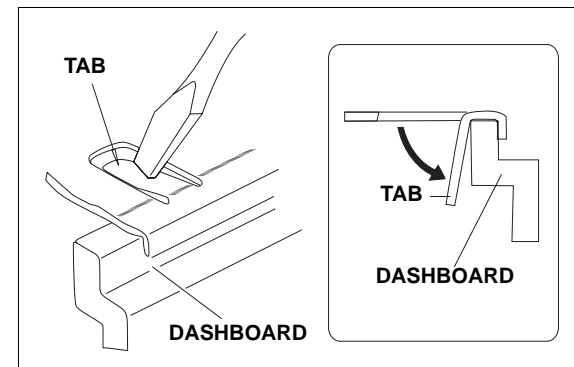
Installation Using Half-Sleeve

1. Press the metal levers on both sides to remove the half-sleeve from the radio.
2. Install the half-sleeve.
 - a. Install adapter if necessary (optional).
 - b. Install half-sleeve into adapter or dashboard (use only the supplied screws). Do not force the sleeve into the opening or cause it to bend or bow.

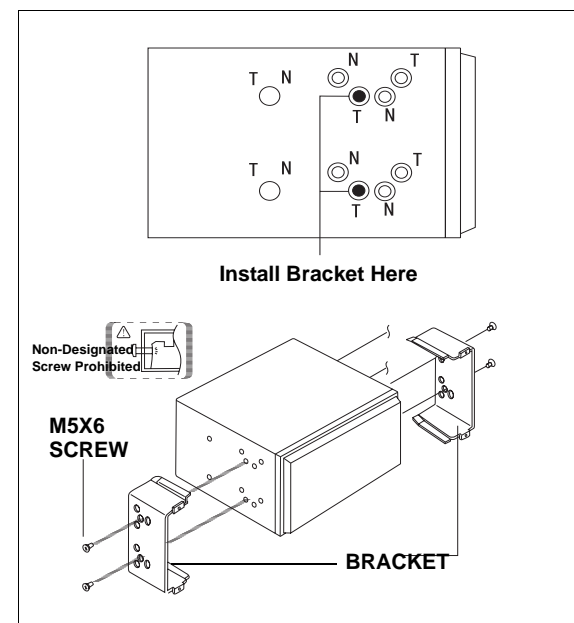
INSTALL HALF SLEEVE



- c. Locate the series of bend-tabs along the top, bottom and sides of the mounting sleeve. With the sleeve fully inserted into the dashboard opening, bend as many of the tabs outward as necessary so that the sleeve is firmly secured to the dashboard.



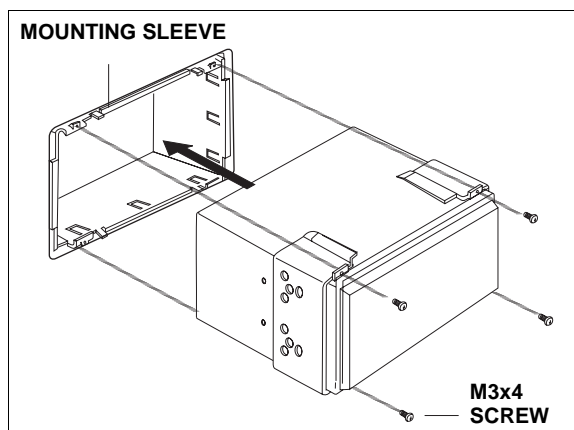
3. Use the M5 x 6 screws (provided) to install the mounting brackets to each side of the radio using the holes indicated below.



4. Place the radio in front of the dashboard opening so the wiring can be brought through the mounting sleeve.

CAUTION! Be careful not to damage the car wiring.

- Complete wiring as illustrated in the wiring diagram on page 3. Once the wiring is complete, reconnect the battery negative terminal. If there is no ACC available, connect the ACC lead to the power supply with a switch.



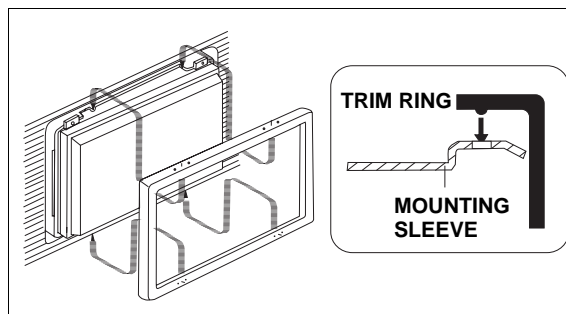
After completing the wiring connections, turn the unit on to confirm operation (ignition switch must be on). If unit does not operate, recheck all wiring until problem is corrected. Once proper operation is achieved, turn off the ignition switch and proceed with final mounting of the chassis.

- Connect wiring adapter to existing wiring harness.
- Connect antenna lead.
- Carefully slide the radio into the half-sleeve, making sure it is right-side-up, until it is fully seated and the spring clips lock it into place.

Using the Cosmetic Trim Ring

Two cosmetic trim rings are packaged with the VM9022HDN for installation flexibility. The VM9022HDN will fit into most import dashes with little or no modification to the dashboard or cavity. Some US domestic vehicle dashes will accept a Double-DIN chassis, but there is usually a small gap between the radio and dash piece after installation is complete. In this case, use the appropriate trim ring to conceal any gaps that may be present.

The 4 tabs on the trim ring will snap into four holes on top and bottom of the mounting sleeve.



Installing the MediaLink External AV Connector

The MediaLink allows you to connect a variety of external devices, including a VCR, DVD player, portable MP3 player, etc., to your VM9022HDN without removing the radio.

To install the MediaLink, connect it to the AUX-IN cables on the back of the VM9022HDN (see the Wiring Diagram on page 3), and then install the MediaLink in a location convenient for plugging in auxiliary devices.

Installing the Navigation Antenna

The VM9022HDN utilizes an external GPS antenna that must be installed before accessing navigation features.

Since the navigation module uses GPS technology for navigation, proper antenna placement is crucial for optimal performance of the GPS receiver. When using GPS antennas, the antenna plane should be parallel to the geographic horizon. There should be nothing between the antenna and the sky to ensure a direct line-of-sight between the antenna and available satellites.

The preferred antenna location is on the top of the car on the roof or trunk area. When placed on the dashboard, performance may be reduced due to obstruction caused by the window or roof.



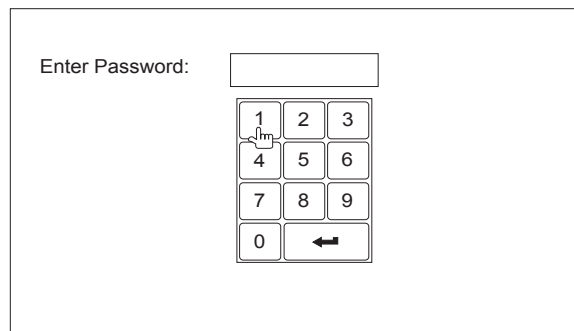
NOTE: Do not cut the GPS antenna cable to shorten or lengthen it.

Replacing the Fuse

When replacing the fuse, use a new 20A replacement fuse. Using a fuse with an improper rating could damage the unit and cause a fire.

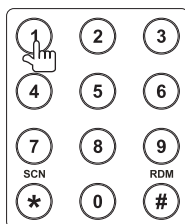
ANTI-THEFT FEATURE

The VM9022HDN is equipped with an anti-theft feature requiring the user to enter a password upon initial power on.



Entering the Default Password


The default user password is **012345** (6 digits). Enter the password using the on-screen keypad and then press the Enter (arrow) button. You can also use the remote control keypad to enter the password.



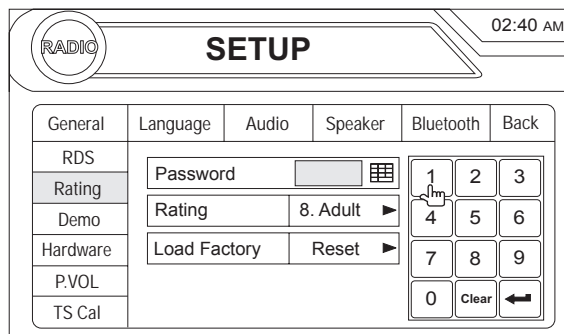
Press the joystick Enter button (18) on the remote control to confirm.

Changing the Password

To change the anti-theft and RATINGS protection password, perform the following steps:

1. Press the **SETUP** button (31) on the remote control or touch the  button on the screen to enter the "SETUP" menu.
2. Touch **RATING** to view the "RATING" sub-menu. An open lock icon to the right of the "Password" field indicates that a user password had not yet been entered.

3. Touch the keypad icon next to the blue box in the "Password" field to open the on-screen keypad.



4. Enter a new 6-digit password and press the Enter (arrow) button.

The "lock" icon will now appear closed and the new anti-theft password will be set, as well as the password for RATING protection (see "Rating Sub-menu Features" on page 18).

NOTE: If you forget your password, contact Customer Service at 1-800-323-4815 for assistance.

CONTROLS AND INDICATORS

Button Operation

1. OPEN/TILT

Press to activate the automatic mechanical system and move the TFT monitor into viewing position. Press again to close the TFT.

Press and hold to activate the screen tilt function (use the joystick to adjust the angle).

2. DISP

Press to cycle through information available on the TFT screen.

In DVD Mode, press to view the top and bottom information bars. Press again to turn "Display Off".

3. NAV

Press to access Navigation Mode.

4. BAND

Press the **BAND** button to change the AM, FM or SAT band.

5. AUDIO

Rotate to adjust the volume. Press to enter and/or confirm audio settings.

6. SRC

Press to select playing mode.

When you change the source during navigation, the voice prompts will still be heard, although the navigation map cannot be seen. (The selected source audio will be muted until the navigation voice prompt command is completed, after which the source audio will resume.)

7. WIDE/PIC

Press to adjust the display aspect of the picture to one of three settings: CINEMA, NORMAL or Standby (screen off).

Touch the screen to turn Standby mode off. **NOTE: Only CINEMA and Standby are available for non-video sources.**

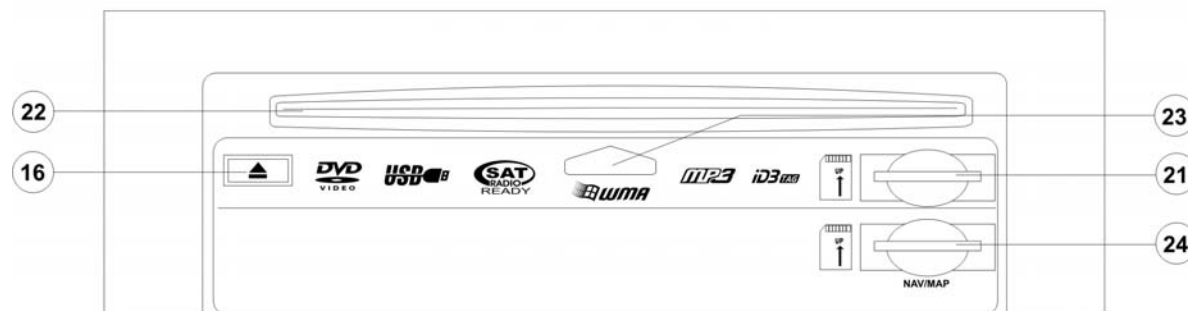
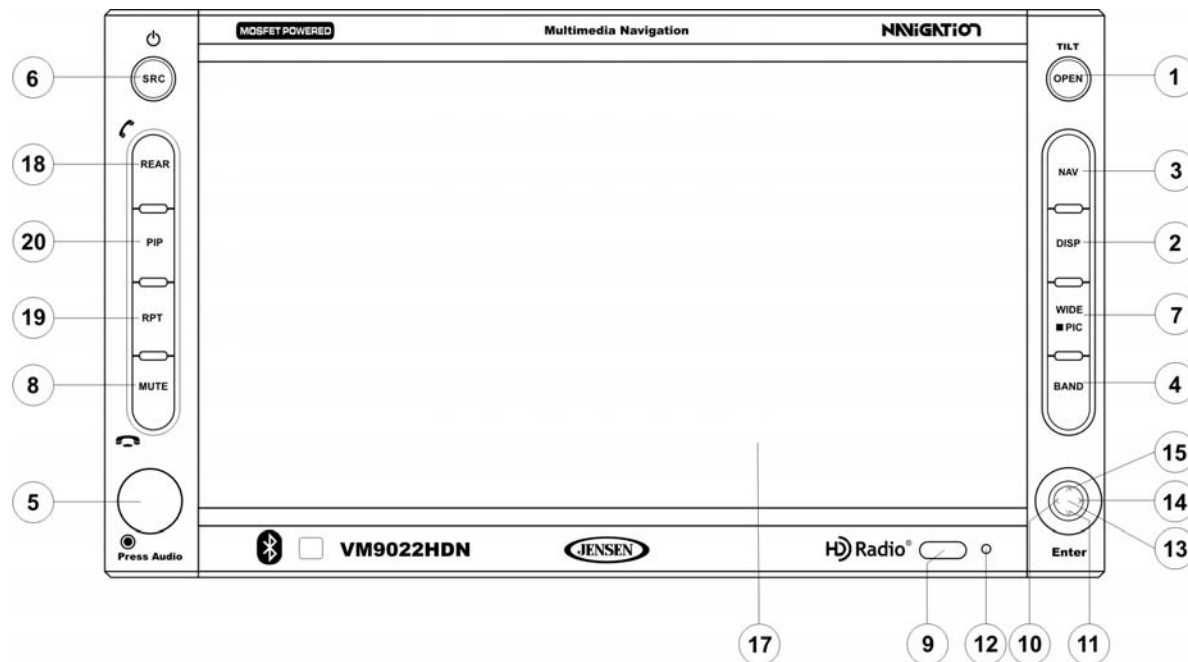
Press and hold to adjust Brightness and Contrast.

8. MUTE

Press to silence the receiver. Press again to resume the previous volume level.

BT Mode: Answer/dial Bluetooth call.

NOTE: The VM9022HDN features Softmute, which will allow the volume to increase or decrease gradually when the MUTE function is activated or deactivated.



9. IR Remote Control Receiver

10. (left joystick)

DVD/Disc Mode: Press once to play back the previous chapter/track.

TUNER Mode: Press once to auto-search for the previous available radio station.

MENU Mode: Press once to move the cursor to the left.

11. (down joystick)

DVD/Disc Mode: Press once for slow forward/slow reverse.

TUNER Mode: Press to go down one frequency step.

MENU Mode: Press once to move the cursor down.

12. Reset

Press to reset system settings to factory default (except the password and parental lock setting).

CONTROLS AND INDICATORS

13. Pause/Play/Enter

Press to pause or resume playback or to confirm current selection.

14. (right joystick)

DVD/Disc Mode: Press once to enter the next chapter or track.

TUNER Mode: Press once to auto-search the next available radio station.

MENU Mode: Press once to move the cursor to the right.

15. (up joystick)

DVD/Disc Mode: Press once for fast forward/fast reverse.

TUNER Mode: Press to go up one frequency step.

MENU Mode: Press once to move the cursor up.

16. (▲)

Press once for disc insertion/ejection.

Press and hold to reset core mechanism position.

17. TFT Display

18. REAR

Select rear zone source. Allows front passengers to listen to the radio while rear passengers listen to a CD, MP3, WMA or watch DVDs.

BT Mode: Disconnect Bluetooth call.

19. RPT

Press to control repeat playback function.

20. PIP

Press to activate the Picture In Picture function.

21. SD Card Slot

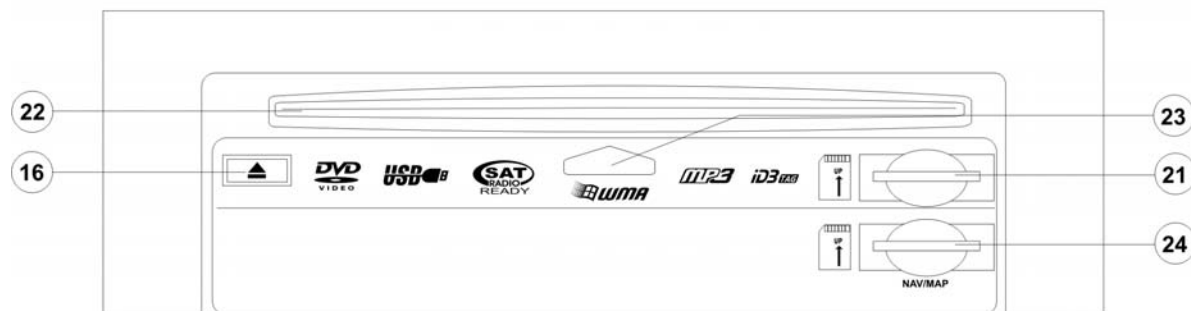
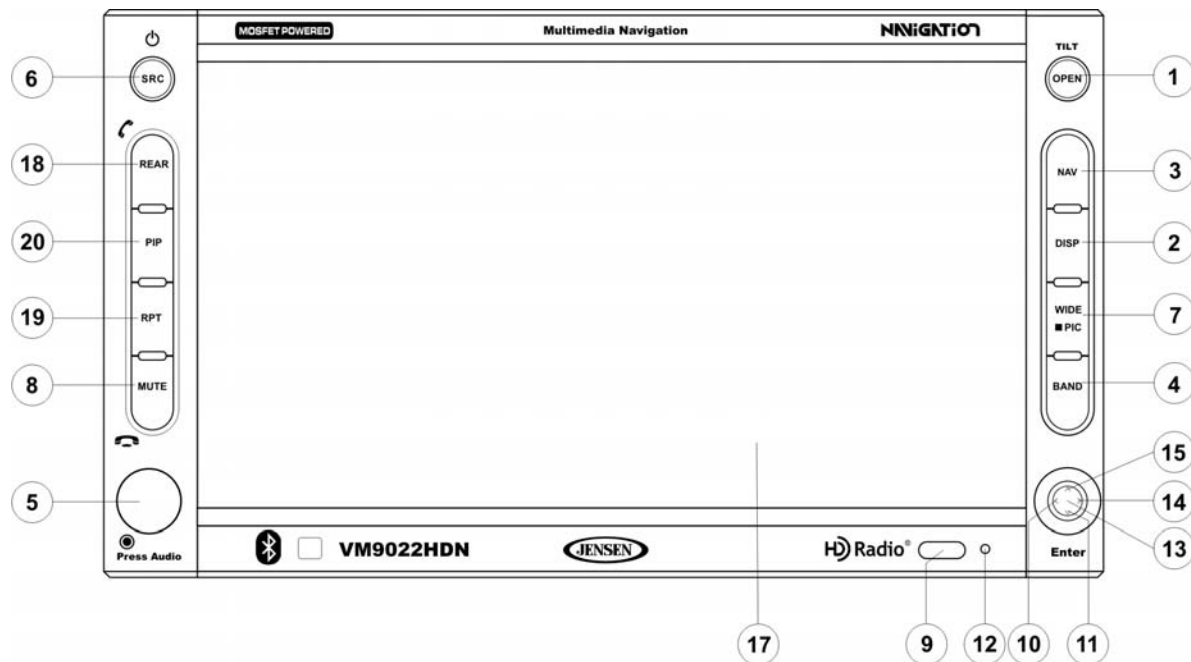
Insert SD card for playback of audio files.

22. Disc Slot

23. Disc Loaded Indicator

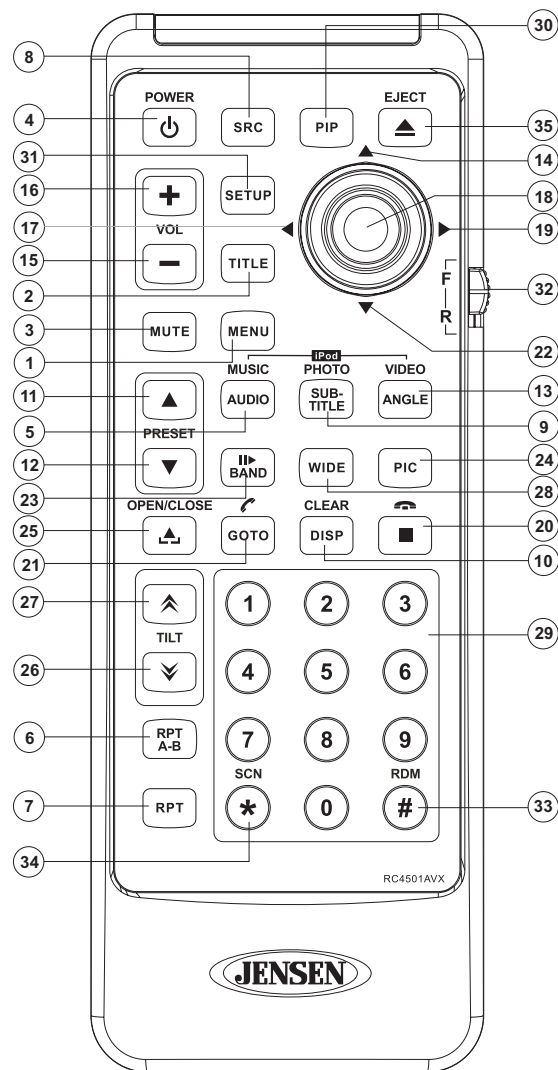
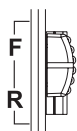
24. NAV/MAP SD Card Slot

Insert Jensen Navigation Map Data 2GB SD card (included).



REMOTE CONTROL

The VM9022HDN Remote controls both the front and rear zones. To switch from front to rear zone, move the F/R switch (32) located on the right side of the controller.



NOTE: Your remote control may differ slightly from the one pictured here. The above diagram is for illustrative purposes only.

Table 1: Remote Control Functions

| Button | | Function | | | | | |
|------------------|------|--|--|--|--|--|--|
| Name | Ref# | DVD | VCD | TUNER | CD/MP3 | SATELLITE | iPod |
| MENU | 1 | Enters the main menu of the disc | Turns on/off PBC when playing VCD | | | Displays diagnostics screen | Displays iPod menu |
| TITLE | 2 | Enters the title menu of the disc | Plays first ten seconds of each chapter/title | | | Category list in CG mode | |
| MUTE | 3 | Toggles on/off audio output | Toggles on/off audio output | Toggles on/off audio output | Toggles on/off audio output | Toggles on/off audio output | Toggles on/off audio output |
| POWER/⏻ | 4 | Turns the power on/off | Turns the power on/off | Turns the power on/off | Turns the power on/off | Turns the power on/off | Turns the power on/off |
| AUDIO | 5 | Changes the audio language for disc playback | | | Selects Music mode | | Selects iPod Music mode |
| RPT A-B | 6 | Setup to repeat playback from time frame A to time frame B | Setup to repeat playback from time frame A to time frame B | | | | |
| RPT | 7 | Repeats chapter/title | Repeats track/disc | | Repeats track/folder/disc | | Repeats playback of current track |
| SRC | 8 | Selects playing source | Selects playing source | Selects playing source | Selects playing source | Selects playing source | Selects playing source |
| SUBTITLE | 9 | Language selection for subtitle | | | Selects Photo mode | | Selects iPod Photo mode |
| DISP/CLEAR | 10 | Displays playing information/ Delete entry or move backwards to correct error in Direct Access mode | Displays playing information/ Delete entry or move backwards to correct error in Direct Access mode | Displays audio mode Delete entry or move backwards to correct error in Direct Access mode | Displays audio mode Delete entry or move backwards to correct error in Direct Access mode | Displays audio mode Delete entry or move backwards to correct error in Direct Access mode | Displays audio mode Delete entry or move backwards to correct error in Direct Access mode |
| PRESET ▲ | 11 | Zooms in when playing DVD or Photo | Zooms in | Navigates the preset station list | Navigates list window | Navigates the preset station list | Navigates list window |
| PRESET ▼ | 12 | Zooms out when playing DVD or Photo | Zooms out | Navigates the preset station list | Navigates list window | Navigates the preset station list | Navigates list window |
| ANGLE | 13 | Plays back disc in different angle (if available) for a scene | Plays back Picture CD with different angle (if available) of picture displayed | Switches MEM keypad off | Selects Video mode | Switches MEM keypad off | Selects iPod Video mode |
| Joystick / | 14 | Fast forwards the disc content | Fast forwards the disc content | | Fast forwards the disc content | | Accesses iPod Menu |
| VOL - | 15 | Decreases volume | Decreases volume | Decreases volume | Decreases volume | Decreases volume | Decreases volume |
| VOL + | 16 | Increases volume | Increases volume | Increases volume | Increases volume | Increases volume | Increases volume |
| Joystick < | 17 | Selects the previous chapter for playback | Selects the previous chapter for playback | Searches an available radio station by decreasing tuning frequency | Selects the previous track for playback | Searches an available radio station by decreasing tuning frequency | Selects prior track |
| Joystick (press) | 18 | ENTER, Pauses playback/ starts playback | ENTER, Pauses playback/ starts playback | Auto memory scan | ENTER, Pauses playback/ starts playback | ENTER, Toggles the on-screen menu between CAT/ CH mode | ENTER |
| Joystick > | 19 | Selects the next chapter for playback | Selects the next chapter for playback | Searches an available radio station by increasing tuning frequency | Selects the next track for playback | Searches an available radio station by increasing tuning frequency | Selects the next track for playback |
| ■ | 20 | Stops playback | Stops playback | | Stops playback | | |
| GOTO | 21 | Enters Direct Access mode | Enters Direct Access mode | Enters Direct Access mode | Enters Direct Access mode | Enters Direct Access mode | Enters Direct Access mode |
| Joystick V | 22 | Fast reverses the disc content | Fast reverses the disc content | | Fast reverses the disc content | | Pauses playback/starts playback |

Table 1: Remote Control Functions

| Button | | Function | | | | | |
|---|------|---|---|---|---|---|---|
| Name | Ref# | DVD | VCD | TUNER | CD/MP3 | SATELLITE | iPod |
| >/BAND | 23 | Slow Forward/Slow Reverse X2, X4, X8 | Slow forward X2, X4, X8 | Selects AM/FM Band. | | Selects SAT1, SAT2 or SAT3 band. | |
| PIC | 24 | Displays Brightness/Contrast Controls | Displays Brightness/Contrast Controls | Displays Brightness/Contrast Controls | Displays Brightness/Contrast Controls | Displays Brightness/Contrast Controls | Displays Brightness/Contrast Controls |
| OPEN/CLOSE | 25 | Opens/closes the TFT monitor | Opens/closes the TFT monitor | Opens/closes the TFT monitor | Opens/closes the TFT monitor | Opens/closes the TFT monitor | Opens/Closes the TFT monitor |
| TILT ⚓ | 26 | Decreases monitor tilt angle | Decreases monitor tilt angle | Decreases monitor tilt angle | Decreases monitor tilt angle | Decreases monitor tilt angle | Decreases monitor tilt angle |
| TILT ⚓ | 27 | Increases monitor tilt angle | Increases monitor tilt angle | Increases monitor tilt angle | Increases monitor tilt angle | Increases monitor tilt angle | Increases monitor tilt angle |
| WIDE | 28 | Selects display mode: CIN-EMA, NORMAL or Standby | Selects display mode: CIN-EMA, NORMAL or Standby | Selects display mode: CIN-EMA or Standby | Selects display mode: CIN-EMA or Standby | Selects display mode: CIN-EMA or Standby | Selects display mode: CIN-EMA or Standby |
| 1, 2, 3, 4, 5, 6, 7, 8, 9, 0 (Numeric Keypad) | 29 | Directly accesses chapter | | 1-18 selects preset for current band | Directly accesses track | 1-6 selects preset for current band | |
| PIP | 30 | Picture In Picture view of Front source, Rear Zone or NAV | Picture In Picture view of Front source, Rear Zone or NAV | Picture In Picture view of Front source, Rear Zone or NAV | Picture In Picture view of Front source, Rear Zone or NAV | Picture In Picture view of Front source, Rear Zone or NAV | Picture In Picture view of Front source, Rear Zone or NAV |
| SETUP | 31 | Displays Setup menu | Displays Setup menu | Displays Setup menu | Displays Setup menu | Displays Setup menu | Displays Setup menu |
| F/R | 32 | F controls front zone R controls rear zone | F controls front zone R controls rear zone | F controls front zone R controls rear zone | F controls front zone R controls rear zone | F controls front zone R controls rear zone | F controls front zone R controls rear zone |
| RDM | 33 | Plays all chapters in random order | | | Plays all tracks in random order | | Plays all tracks in random order |
| SCN | 34 | | | Preview scan | Plays the first ten seconds of each track | Preview scan | |
| EJECT | 35 | Ejects disc | Ejects disc | Ejects disc | Ejects disc | Ejects disc | Ejects disc |

USING THE TFT MONITOR

Open/Close TFT Monitor

Open TFT Monitor

Press the **OPEN** button (1) on the front panel or press the (▲) button (25) on the remote control to slide the monitor panel down to reveal the disc and SD card slots.

Close TFT Monitor

Press the **OPEN** button (1) on the front panel or press the (▲) button (25) on the remote control close the monitor panel.

Monitor Tilt Angle Adjustment

A known characteristic of LCD panels is the quality of the display in relationship to the viewing angle. The monitor angle can be adjusted for optimum viewing using one of the following methods.

Step by Step Angle Adjustment

Press the (▲) or (▼) button on the remote control (26, 27) to adjust the tilt angle of the screen one step at a time.

Continuous Angle Adjustment

Press and hold the (▲) or (▼) button on the control panel or remote control to adjust the tilt angle in a continuous motion.

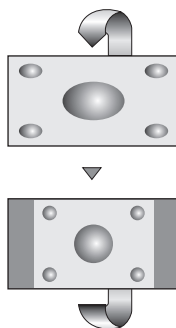
Reverse Driving Use

If the rear-view video camera is connected, the unit is on, and the monitor is stationed inside the main compartment of the unit, the monitor automatically moves into the viewing position and switches to CAMERA mode upon reverse driving. When the reverse driving stops, the monitor returns to the main storage compartment.

If the monitor is in display mode, the monitor automatically switches to CAMERA mode upon reverse driving. When the reverse driving stops, the monitor returns to its original input mode.

Aspect Ratio

Press the **WIDE** button (28) on the remote control or **WIDE/PIC** button (7) on the monitor to adjust the aspect ratio as follows (only active with video source):



CINEMA

The entire screen is extended horizontally to the aspect ratio of 16 to 9. The extension ratio is the same at any point.

NORMAL

The conventional display image has a 4 to 3 ratio of horizontal to vertical, leaving a blank area on the right and left sides of the display.

STANDBY

Screen becomes black. Touch screen to resume.

Image Setting

Table 2 shows the video output mode for each playing source.

Table 2: Video Output Modes

| Playing Source | Video Output Modes |
|----------------|--------------------|
| RADIO | RGB Mode |
| SAT | RGB Mode |
| DISC | RGB Mode |
| BT | RGB Mode |
| AUX 1 | CVBS Mode |
| AUX 2 | CVBS Mode |
| NAV | RGB Mode |
| CAMERA | CVBS Mode |

*CVBS – Composite Video Baseband Signal

Parameter Adjustment Procedure

- Enter Picture Quality Setting Mode:**
Press the **PIC** button (24) on the remote control or *press and hold* the **WIDE/PIC** button (7) on the monitor.
- Select Item to Set:**
Use the up/down joystick buttons to select "BRIGHT" or "CONTRAST".
- Set Parameters:**
Use the left/right joystick buttons to modify the settings.
- Exit Picture Quality Setting Mode:**
Press the **PIC** button on the remote control or the **WIDE/PIC** button on the monitor

Parking Brake Inhibit

When the pink "Parking" wire is connected to the vehicle Parking Brake circuit, the front TFT monitor will display video when the Parking Brake is engaged. (When the pink wire is grounded via the Parking Brake circuit, video will be displayed.)

OPERATING INSTRUCTIONS

Power On / Off

Press the **⏻/SRC** button (6) (or any other button on the front of the unit except reset), or the **⏻/POWER** button (4) on the remote control, to turn the unit on. The buttons on the front of the unit light up and the current mode status appears on the TFT screen (17).

Press and hold the **⏻** button to power off the unit. The monitor is drawn back into the main compartment.

Audible Beep Confirmation

An audible beep tone confirms each function selection. The Beep tone can be disabled through the Setup menu.

Volume Adjustment

To increase or decrease the volume level, turn the rotary encoder (5) on the front panel or press the **VOL+ / VOL-** buttons (15, 16) on the remote control. When the volume level reaches "0" or "40", a beep sounds, indicating that the adjustment limit has been reached. The volume ranges from "0" to "40". The TFT screen displays the volume level for 3 seconds.

Programmable Turn-On Volume

This feature allows the user to select a turn-on volume setting regardless of the volume setting prior to turning the unit off. To program a specific turn-on volume level, turn the **AUDIO** control (2) to adjust the volume to the desired turn-on volume. Push and hold the **AUDIO** button while the yellow speaker icon and level indication is displayed on the screen. The unit will beep two times to confirm your turn-on volume setting.

Mute

Press the **MUTE** button on the front panel (8) or remote control (3) to mute the volume from the unit. Press the **MUTE** button again to restore the volume. "MUTE" is displayed on the screen. Adjusting the volume or using any of the audio setup features cancels the mute function.

Line Mute

If the "MUTE" wire is connected, audio output mutes when a telephone call is received by a cell phone.

Steering Wheel Control (SWC)

The VM9022HDN is compatible with the PAC (Pacific Accessory Corporation) steering wheel control adapter SWI-PS. A 3.5mm female connector (labeled "SWC Interface") on the back of the head unit allows connectivity to the PAC

adapter. Please refer to the instructions included with the PAC adapter for detailed installation information.

SWC Functions

The following controls are available for most vehicles:

1. Vol Up
2. Vol Down
3. Mute
4. Seek Up / Next Track / ** Preset Up
5. Seek Down / Previous Track / ** Preset Down
6. SRC (Source)
7. ** Select
8. ** Select
9. Band

** If additional steering wheel control buttons are available on the vehicle, function 7 / 8 may be assigned the "Select" feature. This feature / function may not be available on some vehicles.

Select Operation

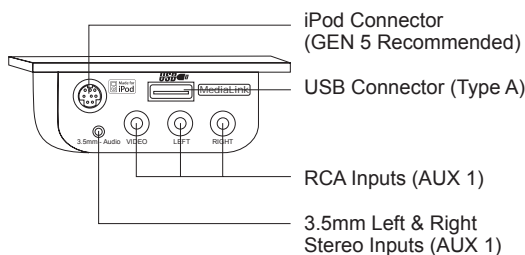
If "Select" (function 7 or 8) is held down and function 4 is pressed momentarily, Preset Up will be selected. If "Select" (function 7 or 8) is held down and function 5 is pressed momentarily, Preset Down will be selected.

Playing Source Selection

Press the **SRC** button on the front panel (6) or remote control (8) to change between available playing sources in the following order: RADIO, SAT, DISC, NAV, BT, iPod, SD, USB, AUX1, AUX2 and CAMERA. The playing mode is displayed on the TFT screen.

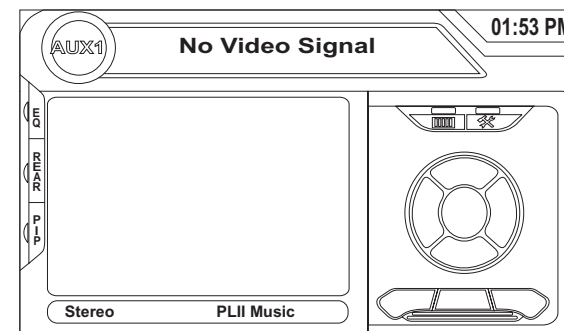
Auxiliary Devices

External peripheral devices can be connected to this unit via RCA output (AUX IN 2) or the MediaLink⁴.



Select "AUX1" to play an auxiliary device connected via the MediaLink RCA or 3.5mm inputs. For example, you can play

music files from a portable music player, video from a video camera and even view photos stored on a digital camera. Select "AUX2" mode to access and control auxiliary devices



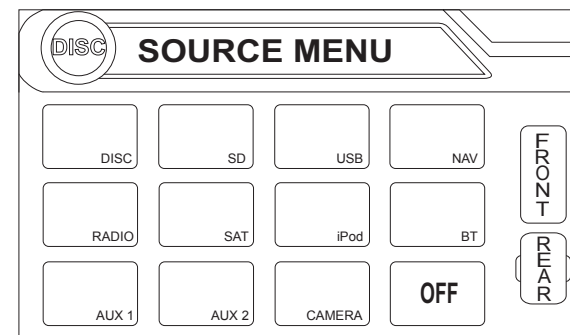
connected to the "AUX IN 2" inputs on the back of the radio.

Selecting a Source while Navigating

While navigating, other sources may be selected and listened to such as AM-FM Tuner, CD, etc. To select a source, press the **⏻/SRC** button (6) and then select a source from the Front Source Menu. Navigation voice prompts will be heard automatically, although the navigation map cannot be seen. (The selected source audio will be muted until the navigation voice prompt command is completed, after which the source audio will resume.)

Source Menu

To access the SOURCE MENU, touch the TFT screen in the top left corner of the screen.

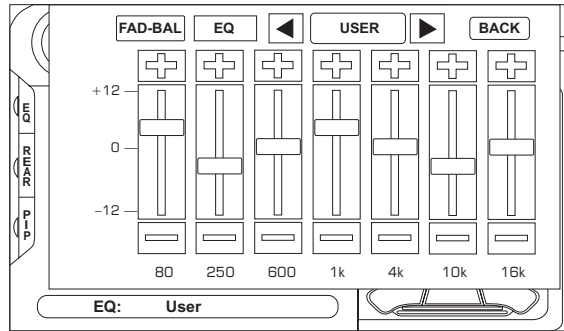


This menu allows you to select a source for the front or rear zone. Touch FRONT or REAR to choose the zone for which you would like to specify the source. (See "Multi-ZONE Operation" on page 16.)

Audio Control Menu

The Audio Control menu features a 7-band graphic equalizer, which allows you to easily adjust your audio system to meet the acoustical characteristics of your vehicle, which vary depending on the type of vehicle and its measurements. Proper setting of the Fader and Balance boosts the effects of the cabin equalizer.

Press the **AUDIO** button (5) on the front panel to display the audio menu.



To adjust an audio feature:

1. Use the left/right joystick buttons to highlight the audio feature to be adjusted.
2. Press the joystick **Enter** button on the control panel (13) or remote control (18) to select the highlighted option.
3. Use the joystick to adjust the selected feature to the desired setting.

Table 3: Audio Adjustments

| Function | Adjustment Options | |
|----------|--|---|
| EQ | User | In user mode, you can manually adjust each of the seven frequency bands. Use the on-screen arrows to select a predefined equalization curve. |
| | Acoustic | |
| | Urban | |
| | Rave | |
| | Latin | |
| | Dance | |
| | Hip Hop | |
| | Rock | |
| FAD-BAL | Use this screen to adjust the output level for each speaker in your surround system from 0 to -24dB. You can also adjust the master volume from this screen. | |

NOTE: The EQ mode will automatically change to "USER" when individual EQ bands are adjusted.

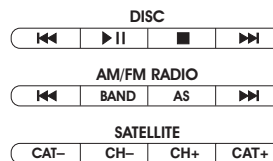
Proper setting of the Fader and Balance complement the effects of the cabin equalizer.

The Audio menu will automatically exit after a few seconds of inactivity. To exit quickly, touch the top left corner of the screen or *press and hold* the **AUDIO** button (5).

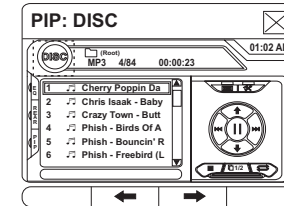
Alternate Display Options

A menu located on the left side of the screen provides immediate access to the Equalizer, Rear Zone screen view and PIP (Picture in Picture) features.


- **EQ:** Touch to view Spectrum Analyzer > Equalizer.
- **REAR:** Touch to view the Rear Zone screen. Control options appear below the PIP image, depending on the source.



- **PIP:** Touch to view the Rear Zone, current Front Zone, or NAV screen. Use the left/right arrows below the PIP image to change the PIP source.



System Reset

To correct a system halt or other illegal operation, use the tip of a pen  [RESET] Button to press the reset button (12) located on the front bottom-right corner of the unit. After a system reset, the unit restores all factory default settings.

NOTE: If the unit is reset while a DVD is playing, the DVD resumes play once the reset is complete.

MULTI-ZONE OPERATION

Independent sources can be played simultaneously on the VM9022HDN. For example, a video game console can be seen on the front screen while DVD video is available to rear passengers.

DVD and SD Card sources cannot be selected for simultaneous Front / Rear operation. For example, if DVD is selected as the Rear Zone source, then SD Card cannot be selected as a Front Zone source. In addition, HD Radio and SAT cannot be selected for simultaneous Front / Rear operation.

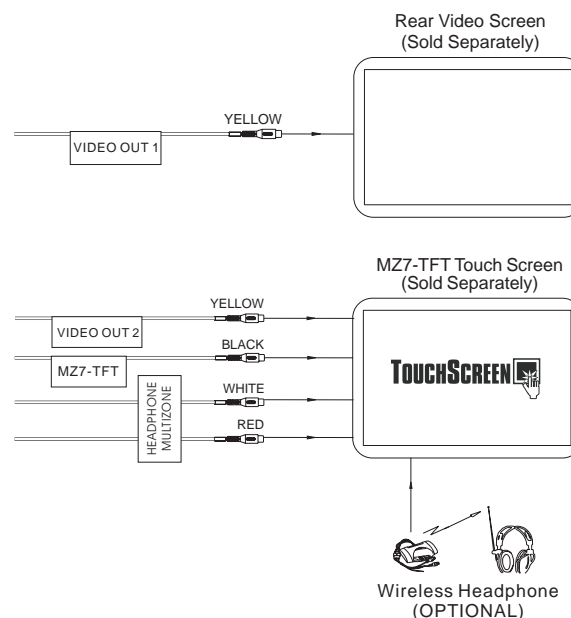
Table 4: Multi-Zone Source Options

| FRONT ZONE | REAR ZONE | | | | | | | | | | |
|------------|-----------|------|----|-----|-----|-----|------|----|-------|-------|-----|
| | HD Radio | Disc | SD | USB | NAV | SAT | iPod | BT | Aux 1 | Aux 2 | Cam |
| HD Radio | O | O | O | O | O | X | O | X | O | O | O |
| Disc | O | O | X | O | O | O | O | X | O | O | O |
| SD | O | X | O | O | O | O | O | X | O | O | O |
| USB | O | O | O | O | O | O | O | X | O | O | O |
| NAV | O | O | O | O | O | O | O | X | O | O | O |
| SAT | X | O | O | O | O | O | O | X | O | O | O |
| iPod | O | O | O | O | O | O | O | X | O | O | O |
| BT | O | O | O | O | O | O | O | O | O | O | O |
| Aux 1 | O | O | O | O | O | O | O | X | O | O | O |
| Aux 2 | O | O | O | O | O | O | O | X | O | O | O |
| Cam | O | O | O | O | O | O | O | O | O | O | O |

Connecting the Rear Zone Touch Screen

You can connect up to two additional monitors (sold separately) for rear passengers, one of which can be a Touch Screen.

You can also connect a wireless headphone system to one of your rear monitors, as illustrated below.



This menu allows you to select a source for the front or rear zone. Touch FRONT or REAR to choose the zone for which you would like to specify the source.

Controlling the Rear Zone Screen(s)

If you have a rear touch screen installed, you can touch the screen to control most rear zone functions.

You can also use the remote control. The VM9022HDN remote controls both the front and rear zones. To switch from front to rear zone, move the F/R switch (32) located on the right side of the remote controller.



NOTE: You cannot change or control the front zone source from the rear zone video screen.

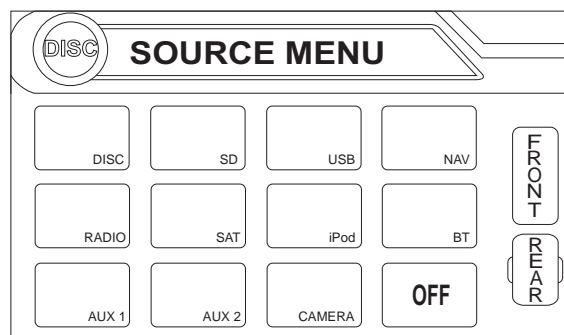
Touch the **REAR** button on the left side of the screen to view a "Picture in Picture" image of the rear screen.

Turning the Rear Screen Off

Touch the OFF button (on the SOURCE MENU) to suspend operation of the rear screen. Any operation assigned exclusively to the rear source will be suspended until reactivated using either the front or rear zone touch screen or the remote control.

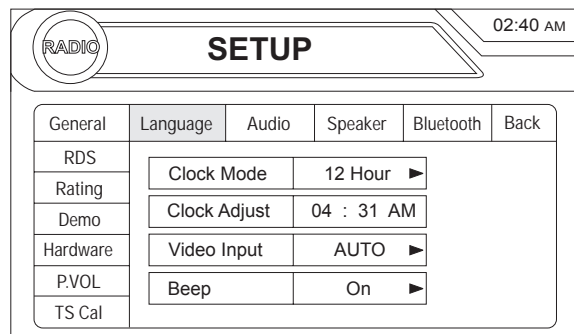
Changing the Rear Zone Source

To access the SOURCE MENU, touch the TFT screen in the top left corner of the screen.



SETUP MENU

To access system settings, press the **SETUP** button (31) on the remote control or touch the button on the screen to enter the "SETUP" menu. The "GENERAL" sub-menu appears highlighted in blue.



Accessing Menu Items

Touch the sub-menu name or use the joystick to select a sub-menu (Language, Audio, RDS, etc.).

The features available for adjustment under the highlighted sub-menu option will appear in the center of the screen.

Adjusting a Feature

1. Use the touchscreen or press the **Λ** or **V** buttons on the joystick to select the feature to be adjusted.
2. Enter the option field for the feature you want to adjust by using the touchscreen or pressing the **Enter** (joystick) button. A submenu appears in a second row with the selected option highlighted in blue.
3. Select a new value by using the touchscreen or pressing the **Λ** or **V** buttons on the joystick.
4. Use the touchscreen or press the **Enter** (joystick) button to confirm setup.

General Sub-menu Features

| Setting | Options | Function |
|------------|---------|--|
| Clock Mode | 12 Hour | Clock displays 12 hour time using AM and PM. |
| | 24 Hour | Clock displays 24 hour time up to 23:59. |

| Setting | Options | Function |
|--|---------|---|
| Clock Adjust | (HH:MM) | The clock appears in the top right corner of the screen and on the TFT screen during certain operations. NOTE: The AM/PM indication will change as you continue to adjust the hour past 12. |
| Video Input (Input circuitry autodefects the video signal from the Aux In source). | NTSC | The color signals are output in the standard NTSC format. |
| | PAL | The color signals are output in the standard PAL format. |
| | Auto | The color signal output is switched automatically based on the current video input signal - NTSC or PAL. |
| Beep | On | When turned on, an audible beep tone confirms each function selection. |
| | Off | No beep sounds. |

Language Sub-menu Features

If a DVD supports more than 1 Subtitle or Audio language, all the languages are available for selection during playback. If the selected language is not supported by the DVD, then the default language is used.

| Setting | Options | Function |
|--------------|---------|---|
| OSD | English | On Screen Display appears in English. |
| DVD Audio | English | DVD Audio is heard in English when the option is available. |
| | Spanish | DVD Audio is heard in Spanish when the option is available. |
| | French | DVD Audio is heard in French when the option is available. |
| DVD Subtitle | English | DVD subtitles automatically appear in English when available. |
| | Spanish | DVD subtitles automatically appear in Spanish when available. |
| | French | DVD subtitles automatically appear in French when available. |
| | Off | DVD subtitles do not appear automatically. |
| Disc Menu | English | DVD menu (if applicable) is displayed in English. |
| | Spanish | DVD menu (if applicable) is displayed in Spanish. |
| | French | DVD menu (if applicable) is displayed in French. |

Audio Sub-menu Features

| Setting | Options | Function |
|---------------|----------|---|
| DRC | Off | Employ the Dynamic Range Control for better playback for low volumes. |
| | On | |
| Audio Mode | Surround | Choose Stereo to send the same signal to the front and rear left/right speakers. If you have a center speaker, you can choose the Surround option when supported by your media. |
| | Stereo | |
| Pro Logic II | Music | Optimized for music reproduction when playing music encoded in Dolby. |
| | Movie | Optimized for video reproduction when playing movies encoded in Dolby. |
| | Matrix | Use with Dolby Matrix encoded media. |
| Sub. W Filter | 50Hz | Selecting a crossover frequency sets a cut-off frequency of the sub-woofer's LPF (low-pass filter). |
| | 80Hz | |
| | 100Hz | |
| | 120Hz | |
| | 150Hz | |

Speaker Sub-menu Features

- Choose **4 CH**, **4.1 CH** or **5.1 CH** depending on the speaker configuration in your vehicle.
- Use the **Test Tone** feature to verify speaker settings. Make changes using the EQ/FAD-BAL menu, accessed by pressing and holding the **AUDIO** button (volume control).
- Subwoofer Phase Adjustment: Touch the **sub.w** icon to access the subwoofer polarity controls and reverse the subwoofer signal polarity from **0°** to **180°**. Reversing polarity can improve bass response related to speaker configuration.
- Delay Setting: Delay is available when the media is Dolby Digital encoded or digital bitstream.
 - **RL** and **RR** only are available in 4.0 and 4.1 mode
 - Touch the **RL**, **RR** and **Cent** speaker icons to access the delay setting
 - L and R Rear channels: 0 - 15 msec
 - Center channel: 0 - 5 msec

Bluetooth Sub-menu Features

| Setting | Options | Function |
|--------------|---------|--|
| Bluetooth | On | Enable Bluetooth function. |
| | Off | Disable Bluetooth function. |
| Auto Answer | On | The unit automatically answers all incoming calls. |
| | Off | Manually answer calls by touching the "call" button. |
| Connect | Manual | Connect the last active mobile phone by touching the CONNECT icon when disconnected. |
| | Auto | Automatically connect when your paired phone is in range. |
| Pairing Code | | The default code is "1234". Touch the keypad icon to open the keypad and enter the pairing code or pass key required for Bluetooth connection to your mobile phone. Not all phones/devices require a pairing code. The default code is "0000" for many models. |

Tuner Region Sub-menu Features

| Setting | Options | Function |
|--------------|--|--|
| Tuner Region | Region 1 | FM Band: 87.6MHz - 107.9MHz, channel separation @ 100kHz |
| | UK Europe Russia Africa | AM Band: 531kHz - 1602kHz, channel separation @ 9kHz |
| | Region 2 | FM Band: 87.9MHz - 107.9MHz, channel separation @ 200kHz |
| | USA Canada Mexico South America | AM Band: 530kHz - 1710kHz, channel separation @ 10kHz |

Rating Sub-menu Features

The DVD system has a built-in parental lock feature to prevent unauthorized persons from viewing restricted disc content. By default, the rating system is set at the highest setting (with no restrictions). The parental lock is released only by entering the correct password. Once the password is entered, rating is available for setup.

| Setting | Options | Function |
|----------|---------|--|
| Password | ----- | Enter the default six-digit password (012345). |

| Setting | Options | Function |
|--------------|-------------|---|
| Rating | 1. Kid Safe | Select the appropriate rating level for the intended audience. You may override higher ratings by using your password. |
| | 2. G | |
| | 3. PG | |
| | 4. PG-13 | |
| | 5. PG-R | |
| | 6. R | |
| | 7. NC-17 | |
| | 8. Adult | |
| Load Factory | Reset | Select "Reset" to restore the factory default settings for the Rating system only. |

To reset the password, access the "RATING" menu and enter the current password. Once the correct password is entered, you can access the "Password" field and enter a new one.

NOTE: Record the password and keep it in a safe place for future reference. The rating for each disc is marked on the disc, disc packing, or documentation. If the rating is not available on the disc, the parental lock feature is unavailable. Some discs restrict only portions of the disc and the appropriate content will play. For details, please refer to the disc description.

Demo Sub-Menu Features

You can stop/run demonstration mode or turn Demo Auto Run on/off by choosing the "Demo" option from the SETUP MENU.

When "Demo Auto Run" is Off, you can select "Demo Mode > Run" to start Demo Mode. Demo Mode scrolls through the various source screens, simulating activity on the display. "Demo Mode" is discreetly displayed in yellow text (below the clock), to indicate the unit is in Demo Mode. To stop Demo Mode, press the upper-left quadrant of the TFT (Source select).

When "Demo Auto Run" is On, the unit will automatically display Demo Mode when powered on.

Hardware Sub-menu Features

If the rear-view video camera is connected, the unit is on, and the TFT monitor is retracted inside the unit, the TFT monitor automatically moves into the viewing position and Camera mode is selected upon shifting into REVERSE gear. When shifting into DRIVE gear, the TFT monitor is retracted back inside unit after ten seconds.

| Setting | Options | Function |
|--------------|---------|--|
| Camera | Normal | |
| | Mirror | Reverse the camera image as if looking through a rear-view mirror. |
| TFT Set Open | Auto | The TFT panel automatically retracts when turned off and resumes its previous angle when the unit is turned back on. |
| | Manual | The TFT panel maintains its angle adjustment setting when the radio is turned on/off. |
| | Off | The TFT panel automatically retracts when turned off and DOES NOT resume its previous angle when the unit is turned back on. |

If the monitor is in display mode, the monitor automatically switches to CAMERA mode upon reverse driving. When the reverse driving stops, the monitor return to its original input mode.

P.VOL Sub-menu Features

| Setting | Options | Function |
|---------|---------|---|
| Source | DISC | Choose a source for which you would like to increase the relative volume (LEVEL). Use the +/- buttons to increase or decrease the relative volume for the specified source up to 6 decibels. |
| | RADIO | |
| | SD | |
| | SAT | |
| | AUX 1 | |
| | USB | |
| | BT | |
| | AUX 2 | |
| | iPod | |
| | NAV | |

TS Cal (Screen Calibration)

To access the "Screen Calibration" function from the SETUP menu, select the "TS CAL" option.

After entering calibration mode, a crosshair + appears in a corner quadrant of the screen. To begin calibration, *press and hold* the crosshair for one second until it moves to the next quadrant. Continue for each quadrant until the calibration is completed.

To exit without performing calibration, touch the **BACK** button.

Exiting the System Setup Menu

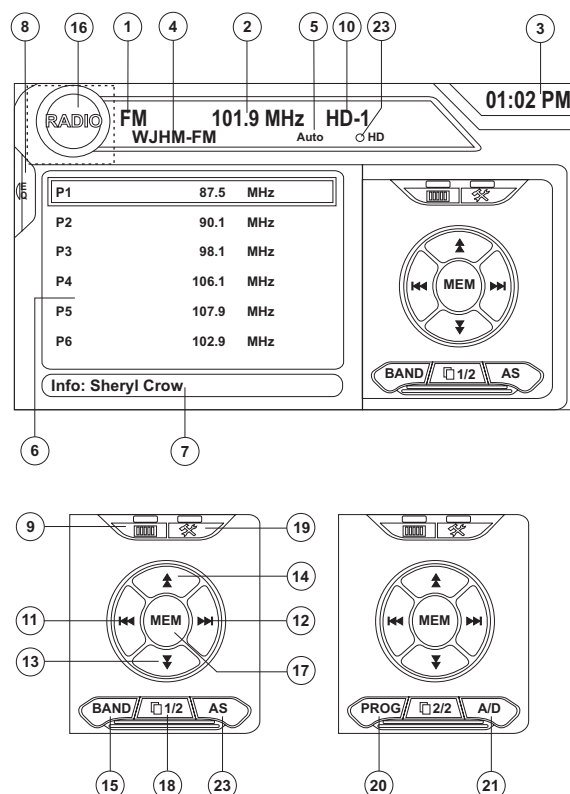
To exit setup mode and resume normal playback, press the **SETUP** button (31) on the remote control or touch the **BACK** button on the screen.

TUNER OPERATION

About HD Radio™ Technology

HD Radio technology allows CD-quality digital broadcasting of your local AM and FM radio stations. HD Radio broadcasts can include multiple channels on the same frequency, which is called multicasting. With multicasting, you can receive up to eight additional multicast channels: HD1~HD8. With your VM9022HDN radio, you will receive HD Radio digital broadcasts automatically when tuned to a station that offers HD Radio technology.

Tuner TFT Display



1. Current radio band indicator
2. Radio frequency indicator
3. Clock
4. Radio station name (call letters)
5. Tuning mode indicator

6. Preset radio stations: Touch to recall preset stations
7. Program Information: Title, Artist, Type
NOTE: The amount of information displayed when receiving an HD Radio signal is dependent upon what is being broadcast. Some stations broadcast their call letters (name), the artist's name, song title, and category of music.
8. Touch for quick access to Equalizer level settings
9. Touch to access the direct entry screen
10. HD band indicator
11. |<<: Touch to seek backward
12. >>|: Touch to seek forward
13. <<: Touch to tune backward one step, including multicast channels
14. >>: Touch to tune forward one step, including multicast channels
15. **BAND**: Touch to change between AM/FM bands
16. Touch to view the SOURCE MENU and select a new playback source
17. **MEM**: View screen used to enter current channel into preset memory
18. **1/2** or **2/2**: Touch this page button to view a second page of on-screen buttons.
NOTE: In AM mode, there is only one page of on-screen button options. The PROG button is not visible since Multicast channels are not available for AM stations.
19. : Touch to view the SETUP menu
20. **PROG**: Touch to view the HD Radio Multicast channel display
21. **A/D**: Touch to select Auto, Analog or Digital tuning mode.
22. HD Radio station indicator
23. Auto memory scan

Switching to HD Radio Reception

- Touch the top left corner of the screen (the RADIO circle) to view the SOURCE MENU. Touch "RADIO".
- Press the **SRC** button (6) on the front panel or remote control (8) to switch to the AM/FM or RADIO source.

Selecting the FM/AM Band

Touch the **BAND** button (15) on the screen, or press the **BAND** button on the unit (4) or remote control (20) to select the AM or FM band.

NOTE: The BAND button on the unit only works when the TFT is closed.

Selecting a Tuning Mode

Touch the **A/D** button (21) to choose from the following modes:

- Auto: Search for both digital and analog stations.
- Analog: Search and broadcast only analog channels.
- Digital: Search and broadcast only digital stations.

Tuning

Not all FM or AM stations offer HD Radio (digital) broadcasting. You can receive both analog and digital stations with the VM9022HDN.

Seek Tuning

To seek the next station:

- Touch the >>| button on screen (13).
- Press the >>| button (19) on remote control.
- Press the > button on the joystick (14).

To seek the previous station:

- Touch the |<< button on screen (12).
- Press the |<< button (17) on the remote control.
- Press the < button on the joystick (10).

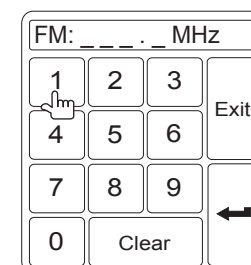
Manual Tuning

To increase or decrease the tuning frequency one step:

- Touch the ↑ or ↓ buttons on screen.
- Press the >> or << buttons (14, 22) on the remote control.
- Press the Λ or V buttons (11, 15) on the joystick.

Direct Tuning

To enter a radio station directly, touch the button or press the **GOTO** button (21) on the remote control to display the direct entry menu.

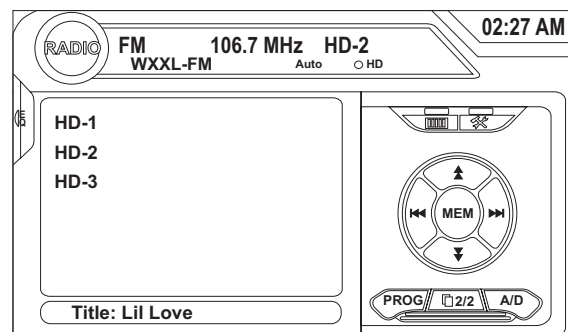


Enter the desired radio station using the on-screen number pad. Press **Enter** to tune to the selected station. To exit the

screen without changing the station, touch **Exit**. To clear your entry and start over, touch **Clear**.

HD Radio Multicast Channels

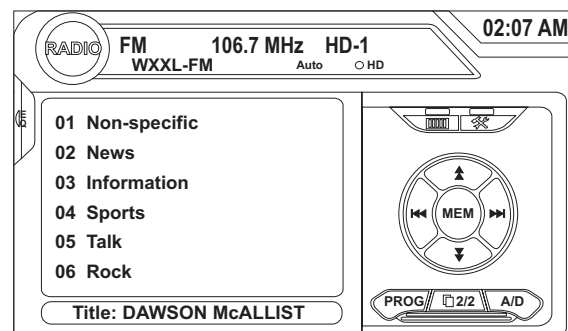
To tune to an HD Radio multicast channel, tune to the main signal and then press the **PROG** button (20) on page 2/2 . If a Multicast channel is being broadcast for the current station, the corresponding multicasting number appears on the left side of the screen. To view the title and artist, if available, select HD-1, HD-2, HD3, etc.



NOTE: The amount of information displayed when receiving an HD Radio signal is dependent upon what is being broadcast. Some stations broadcast their call letters (name), the artist's name, song title, and category of music.

PTY Search

After tuning to an HD Radio channel, the Program Type categories are listed, allowing listeners to find similar programming by genre.



If the PTY menu is not displayed, press the **PROG** button (20) on page 2/2 to toggle between HD Radio multicast channels and PTY categories.

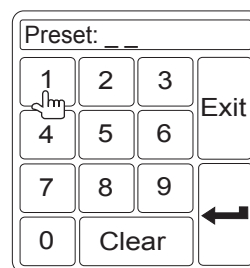
When a PTY category is selected from the touch screen menu, the radio will start scanning for stations broadcasting in the selected category.

Using Preset Stations

Six numbered preset buttons store and recall stations for each band. All six stored stations (P1-P6) for the current band appear on the screen.

Storing a Station

1. Select a band (if needed), then select a station.
2. Touch the on-screen **MEM** button (17), on page 2/2 of the onscreen options, to open the preset screen.

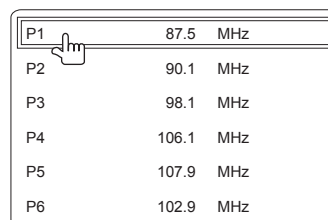


3. Touch the preset number in which you would like to store the current station (or press **EXIT** to cancel and close the menu). The preset number and station appears highlighted.

NOTE: Multicast stations can be stored as preset stations.

Recalling a Station

1. Select a band (if needed).
2. Touch an on-screen preset button (6) to select the corresponding stored station.



Auto Store (AS)

To select six strong stations and store them in the current band:

1. Select a band (if needed).
2. Touch the **AS** button on page 1/2 of the on-screen controls to activate the Auto Store function.

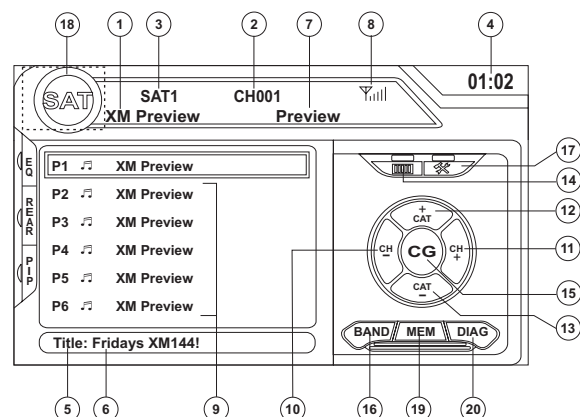
The new stations replace stations already stored in that band.

SATELLITE RADIO OPERATION

Listeners can subscribe to XM® Radio on the Web by visiting www.xmradio.com, or by calling (800) 967-2346. Customers should have their Radio ID ready (see "Displaying the Identification (ID) Code"). Customers can receive a limited number of free-to-air channels without activation.

Accessing Satellite Radio Mode

Press the **SRC** button (8) on the front panel or remote control (8) to switch to the SAT source.



1. SAT channel name
2. SAT channel number
3. SAT band
4. Time
5. Song title
6. Artist name
7. Song category
8. Signal strength indicator
9. Current preset channels/on-screen preset buttons
10. **CH -**: Select the previous channel
11. **CH +**: Select the next channel
12. **CAT +**: Select next channel in current category only
13. **CAT -**: Select previous channel in current category only
14. Touch to enter channel directly using keypad on screen
15. **CG**: Access Channel/Category Guide mode
16. **BAND**: Change between SAT1, SAT2 and SAT3 bands
17. Touch to view the SETUP menu
18. Touch this area to view the SOURCE MENU and select a new playback source

19. **MEM**: View screen used to enter current channel into preset memory
20. **DIAG**: This feature is reserved for use by service professionals for troubleshooting.

Displaying the Identification (ID) Code

Before you listen to satellite radio, you must subscribe to the service using your radio's identification number. To display the radio ID, press the left/right buttons (16, 17) on the joystick or the **CH -** or **CH +** buttons on the touch screen repeatedly to tune to channel "000". The screen displays the radio ID where the channel name is usually displayed.

Selecting a Station

Use the left/right joystick buttons or the **CH -** or **CH +** buttons on the touch screen to change to another station.

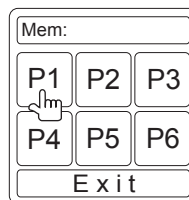
Preset Mode

To enter preset mode, touch the **BAND** button on the screen, or press the **BAND** button on the unit (14) or remote control (20) to change between the following bands: SAT1, SAT2, or SAT3 (indicated in the top left corner of the TFT screen).

Six numbered preset buttons store and recall stations for each band. All six stored stations (P1-P6) for the current band appear on the TFT screen.

Storing a Station

1. Select a band (if needed), then select a station.
2. Touch the on-screen **MEM** button (18) to open the preset screen.



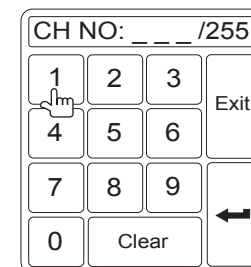
3. Touch the preset number in which you would like to store the current station (or press **EXIT** to cancel and close the menu). The preset number and station appears highlighted.

Recalling a Station

1. Select a band (if needed).
2. Touch an on-screen preset button to select the corresponding stored station.

Direct Tuning

To enter a radio station directly, touch the button or press the **GOTO** button (21) on the remote control to display the direct entry menu.



Enter the desired radio station using the on-screen number pad. Touch the **Enter** button to tune to the selected station. To exit the screen without changing the station, touch **Exit**. To clear your entry and start over, touch **Clear**.

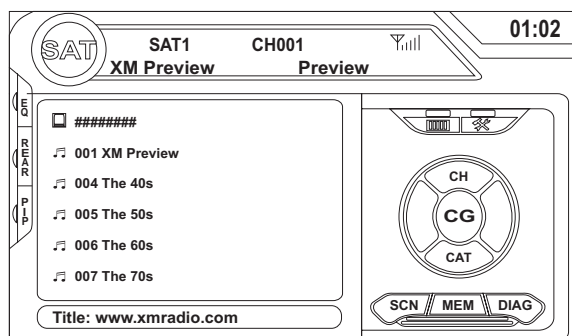
Channel/Category Guide Mode

There are two search modes to help navigate through channels and or categories. To access the Channel/Category Guide mode, press the **Enter** (joystick) button (18) on the remote control or the **CG** button on the touch screen.

Channel Guide is the default search mode. To access Category Guide, press the **TITLE** button (2) on the remote control or touch **CAT** on the touch screen. To return to Channel Guide, touch **CH** on the screen or press the **SUBTITLE** button (9) on the remote control.

Channel Guide Mode

When Channel Guide mode is selected, the first six satellite channels are displayed in the boxes in the bottom left of the TFT screen and the on-screen menu changes to facilitate search mode.



- While in Search Mode, to switch between Channel and Category search modes, press the **CH** or **CAT** buttons on the touch screen.
- Use the scroll bar and arrows on the touch screen to view the next/previous page of stations. Each page contains six channels to select from.
- Press the on-screen **SCN** button to preview each of the 6 channels displayed for 10 seconds.
- Press the **CG** button to return to the Preset Mode screen.
- To select a channel while in Channel Guide mode, touch the channel name on the screen. The channel will begin playing and the unit will return to the Preset Mode.

Category Guide Mode

When Category Mode is selected, folder icons appear on the screen next to category choices.

- While in Search Mode, to switch between Channel and Category search modes, press the **CH** or **CAT** buttons on the touch screen.
- Use the scroll bar and arrows on the touch screen to view the next/previous page of categories. Each page contains six categories to select from.
- To select a category, touch the corresponding category name or folder icon. The channels in that category will be displayed on the screen.
- Use the scroll bar and arrows on the touch screen to view the next/previous six stations in the selected category.
- Touch the on-screen **SCN** button to preview each channel in the selected category for 10 seconds.
- Touch the channel name to play that channel.
- Touch the on-screen **CG** button to return to the Preset Mode screen.

DVD/VCD VIDEO OPERATION

NOTE: When properly installed, DVD video cannot be displayed on the main TFT screen unless the parking brake is applied. If you attempt to play a DVD while the vehicle is moving, the TFT screen displays "PARKING" with a blue background. Rear video screens, if applicable, will operate normally.

Inserting a Disc

To insert a disc, you must first press the **OPEN** button (1) on the control panel or the **OPEN/CLOSE** button on the remote control to reveal the disc slot (22). Insert a disc, label side up, into the disc slot. The front panel will close automatically and disc play begins.

NOTE: If Parental Lock (Rating) is activated and the disc inserted is not authorized, the 6-digit code must be entered and/or the disc must be authorized (see "General Sub-menu Features" on page 17).

You cannot insert a disc if there is already a disc in the unit or if the power is off.

NOTE: DVD-R and DVD-RW will not play unless the recording session is finalized and the DVD is closed.

Ejecting a Disc

To eject a disc, you must first press the **OPEN** button (1) on the control panel or the **OPEN/CLOSE** button on the remote control to reveal the disc slot (22). Press the **▲** button (21) on the unit or remote control (35) to eject the disc. The unit automatically reverts to Tuner mode. You may eject a disc with the unit powered off. The unit will remain off after the disc is ejected.

Reset the Loading Mechanism

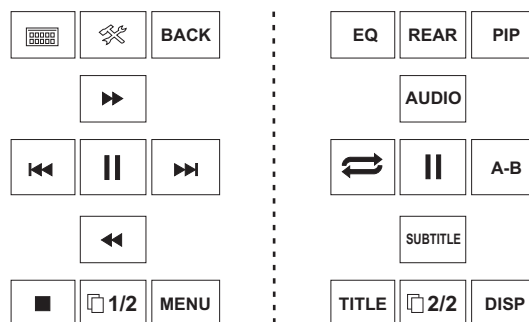
If the disc loads abnormally or an abnormal core mechanism operation occurs, press and hold the **▲** button (21) on the unit or remote control (35) to reset the loading mechanism. Normal operation resumes.

Accessing DVD Mode

To switch to DVD mode when a disc is already inserted, press the **SRC** button (15) on the front panel or remote control (8) until "DISC" appears at the bottom of the screen.

Controlling Playback

To access the on-screen controls, touch the screen. Touch the **1/2** button to view a second page of controls



Stopping Playback

Touch the stop button (■) on the screen or press the **■ / BAND** button (20) on the remote control to stop DVD play.

Pausing Playback

Touch the pause button (||) on the screen (or press the **>||** button on the remote control) to suspend disc playback. Press the **>** button on the screen to resume disc playback.

Fast Forward Playback

Press the **Λ** button on the joystick or the **>>** button on the screen to fast forward. Keep pressing and releasing the button to increase the rate from "2X" to "4X", "6X", and "8X". Press the joystick **Enter** button (18) on the remote control or touch the play button (**>**) to resume normal playback.

Fast Reverse Playback

Press the **V** joystick button or touch the **<<** button on the screen to play the current title in fast reverse. Keep pressing and releasing the button to increase the rate from "2X" to "4X", "6X", and "8X".

Press the joystick **Enter** button (18) on the remote control or touch the play button (**>**) to resume normal playback.

Slow Forward/Slow Reverse Playback

Press the **||> / BAND** button on the remote control to slow forward/slow reverse. Keep pressing and releasing the button to increase the slow forward rate from "2X" to "4X" and "8X" and then begin slow reverse.

Repeat Playback

Press the **RPT** button (19) on the control panel, the **RPT** button (7) on the remote control, or the **↺** button on screen to alter repeat mode according to the following:

- DVD: Repeat Chapter, Repeat Title, Repeat Off
- VCD (PBC Off): Repeat Single, Repeat Off

NOTE: For VCD play, the repeat function is not available if PBC is on.

Sectional Repeat Function (A-B)

Use the A-B function to define a specific area of a disc to repeat.

- Press the **RPT A-B** button (6) on the remote control (or the A-B button on screen) to set the start point (A) of the repeated section.
- Press the **RPT A-B** button again once you reach the desired end point (B) of the repeated section. The selected portion of the DVD will now repeat continuously.
- Press the **RPT A-B** button again to cancel the A-B section setting and stop repeat play.

Random Playback

With a DVD, VCD, or CD playing, press the **RDM** button on the control panel (21) or remote control (33) to activate random playback and play all chapters/tracks in random order. "On" appears on the screen.

Press the **>** button on the joystick to play the next random track.

Press the **RDM** button again to turn random play off.

NOTE: When a VCD is playing with PBC turned "On", activating random playback automatically turns PBC off.

Picture in Picture (PIP)

Press the **PIP** button (30) on the remote control to view a Picture in Picture image of the Front source, Rear Zone or NAV screen. Use the left/right arrows at the bottom of the image to change the PIP source.

Accessing the DVD Menu

Press the **MENU** button (1) on the remote control to recall the main DVD menu. Use the joystick to select a title from the menu or touch the title on screen.

Press the **TITLE** button (2) on the remote control or on screen to select a different title for playback.

Press the **Enter** (joystick) button to confirm your selection and begin playback. You can also select a title using the touch screen.

Moving Through Chapters

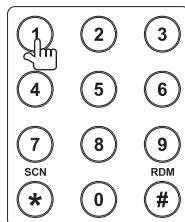
Press the **>** button on the joystick or the **>>|** button on screen to advance to the next chapter on the DVD.

Press the **<** button on the joystick or the **|<<** button on screen to move to the previous chapter.

Direct Chapter / Track Selection


Remote Control Direct Entry

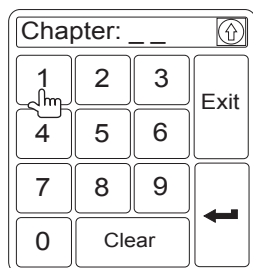
During DVD, VCD and CD playback, you can use the numeric keypad on the remote control (29) to access a track directly.



Touch Screen Direct Entry

To select a title, chapter/track, or specific playback time

directly, touch the  button on screen control to display the direct entry menu.



Use the  button to select Title, Chapter, or Time entry.

- Title: #
- Chapter: / ##
- Time: : :

Enter the desired title, chapter/track, or time using the on-screen number pad and then press the Enter (arrow) button. To exit the screen without making a selection, touch **Exit**. To clear your entry and start over, touch **Clear**.

Viewing an Alternate Picture Angle (DVD Only)

Some DVDs contain scenes that have been shot simultaneously from different angles. For discs recorded with multiple angles, press the **ANGLE** button (13) on the remote control to toggle available angles of the on-screen image.

Zooming

Press the **PRESET** **Λ** and **V** buttons (11, 12) on the remote control to enlarge and pan through the video image using the following options: "ZOOM 1.5", "ZOOM 2", "ZOOM 3", and "OFF".

Multi-Language Discs (DVD Only)

Changing Audio Language

If you are watching a disc recorded in multiple languages, press the **AUDIO** button (5) on the remote control to choose a language.

Changing Subtitle Language

If you are watching a disc recorded in multiple languages with subtitles, press the **SUBTITLE** button (9) on the remote control to choose the language in which you would like the subtitles to appear.

NOTE: During VCD playback, press the AUDIO button (5) on the remote control to choose between Left Channel, Right Channel, and Stereo.

PBC (Play Back Control - VCD Only)

For VCDs with play back functionality, play back control (PBC) provides additional controls for VCD playback.

Press the **MENU** button (1) on the remote control to toggle the PBC function "On"/"Off". Once PBC is on, playback starts from track 1 of the play list.

NOTE: When PBC is activated, fast forward, slow playback, and previous/next track are available. Repeat and direct track selection are not available.

When PBC is activated, selecting random, scan, or search playback automatically deactivates PBC.

Playback Information

During DVD and VCD playback, press the **DISP** button on the control panel (2) or remote control (10) to display playback information on the screen, including the media playing and current playback time.

DVD Playback Information

The following information is displayed at the top of the screen during DVD playback:

- Title: 05/08 – "05/08" indicates the fifth of 8 titles on the DVD is currently playing.
- Chapter: 012/016 – "002/016" indicates that the second of 16 titles on the DVD is currently playing.
- 00:41:28 – "00:41:28" indicates the playback time of the current title.

The following information is displayed at the bottom of the screen:

- Front: Source
- Rear: Source
- CLOCK

VCD Playback Information

The following information is displayed at the top of the screen during VCD playback:

- VCD 2.0 – Format of current disc.
- Title: 06/18 – "06/18" indicates the sixth of 18 tracks on the VCD is currently playing.
- 00:02:18 – "00:02:18" indicates the playback time of the current track.

General Disc Information

Table 5: Disc Properties

| Symbol | 12cm Disc Properties | Max Play Time |
|--------|--|---|
| | Single side single layer (DVD-5) Single side double layer (DVD-9) Double side single layer (DVD-10) Double side double layer (DVD-18) | (MPEG 2 Method) 133 minutes 242 minutes 266 minutes 484 minutes |
| | Single side single layer (VCD) | (MPEG 1 Method) 74 minutes |
| | Single side single layer | 74 minutes |

Table 6: Disc Symbols

| Symbol | Meaning |
|--------|--|
| | Number of voice languages recorded. The number inside the icon indicates the number of languages on the disc (maximum of 8). |
| | Number of subtitle languages available on the disc (maximum of 32). |
| | Number of angles provided (maximum of 9). |
| | Aspect ratios available. "LB" stands for Letter Box and "PS" stands for Pan/Scan. In the example on the left, the 16:9 video can be converted to Letter Box video. |
| | Indicates the region code where the disc can be played. <ul style="list-style-type: none"> Region 1: USA, Canada, East Pacific Ocean Islands Region 2: Japan, Western Europe, Northern Europe, Egypt, South Africa, Middle East Region 3: Taiwan, Hong Kong, South Korea, Thailand, Indonesia, South-East Asia Region 4: Australia, New Zealand, Middle and South America, South Pacific Ocean Islands/Oceania Region 5: Russia, Mongolia, India, Middle Asia, Eastern Europe, North Korea, North Africa, North-West Asia Region 6: Mainland China ALL: All regions |

DVD/CD AUDIO OPERATION

Instructions for TFT control and Insert/Eject are the same for DVD and CD operation. Please see the DVD/Disc Video Operation section for information about these topics.

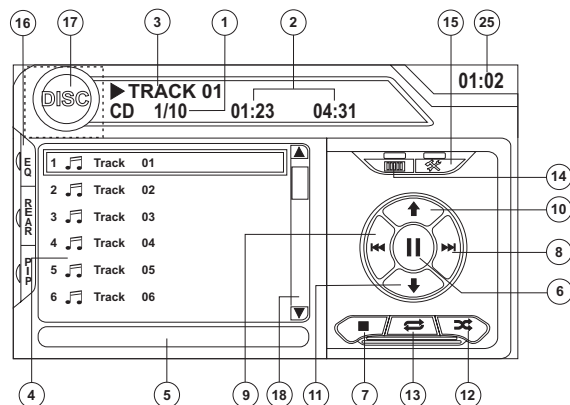
The VM9022HDN will play music or other audio files from the following disc media/formats:

- CD-DA
- CD-R/RW
- DVD
- DVD+R/RW
- DVD-R/RW

Upon inserting a disc with the TFT screen open, the disc and track title (if available), along with the track number and playing time appear on the screen.

CD Player User Interface

The on-screen indicators and touch key areas for CD playback are outlined below.



1. Current track and total number of tracks on disc
2. Elapsed playing time/length of track
3. Current track title
4. Available track titles
5. ID3 information
6. ||: Touch to pause/play disc playback
7. ■: Touch to stop disc playback
8. >>|: Touch to move to next track
9. |<<: Touch to move to previous track
10. ⏮/⏭: Touch to navigate playlist/touch to fast forward
11. ⏮/⏭: Touch to navigate playlist/touch to fast rewind or reverse
12. Touch to activate/deactivate Random play mode

13. Touch to activate/deactivate Repeat play mode
14. Touch to access the direct entry screen
15. Touch to view the SETUP menu
16. Touch to view Spectrum Analyzer > Equalizer
17. Touch to view the SOURCE MENU and select a new playback source
18. Touch the scroll bar and arrows to view the previous/next page of songs
19. Touch to access the Music menu
20. Touch to access the Video menu
21. Touch to access the Photo menu
22. Browse all files
23. DIR -: Touch to view the previous folder
24. DIR +: Touch to view the next folder
25. Current time

Controlling Playback

Stopping Playback

Touch the ■ button on screen or press the ■ button (20) on the remote control to stop disc playback.

To resume playback, touch the ► button on screen or press the joystick button.

Pausing Playback

Touch the ► button on screen or press the joystick button to suspend or resume disc playback.

Moving Through Tracks

Press the >>| button (19) on the remote control or on screen or use the > button on the joystick to advance to the next track on the disc.

Press the |<< button (17) on the remote control or on screen or use the < button on the joystick to move to the previous track.

Repeat Playback

Touch the ⇄ button on screen, press the RPT button on the remote control (7) control panel (19) to alter repeat mode according to the following:

- DVD: Repeat Chapter, Repeat Title, Repeat Off
- CD-DA: Repeat One, Repeat All, Repeat Off
- CD-R/RW: Repeat One, Repeat All, Repeat Off
- DVD-R/RW: Repeat One, Repeat All, Repeat Off

Track Scan Select (CD-DA discs only)

During disc play, press the SCN button on the remote control (34) or control panel (20) to play the first 10 seconds of each track. When a desired track is reached, press the SCN button again to cancel the function and play the selected track.

Random Play Select

While disc play is stopped, press the RDM button on the remote control (33) to play the tracks on the disc in a random, shuffled order. Touch the RDM button again to cancel Random Play mode.

NOTE: CD-R and CD-RW will not play unless the recording session is finalized.


Fast Forward

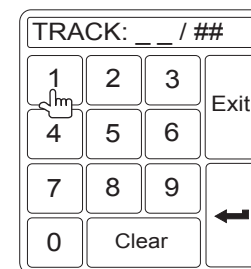
Touch the ⏭ button on screen or press the ⏭ button on the joystick to fast forward. Keep pressing and releasing the button to increase the rate from "2X" to "4X", "6X", and "8X".

Fast Reverse

Touch the ⏮ button on screen or press the ⏮ button on the joystick to fast reverse. Keep pressing and releasing the button to increase the rate from "2X" to "4X", "6X", and "8X".

Direct Track Entry

To select a track directly, touch the  button on screen to display the direct entry menu.



Enter the desired track number using the on-screen number pad, and then press the Enter (arrow) button. To exit the screen without making a selection, touch **Exit**. To clear your entry and start over, touch **Clear**.

MP3/WMA OPERATION

Instructions for TFT control and Insert/Eject are the same for DVD and MP3 operation. Please see the DVD/Disc Video Operation section for information about these topics.

NOTE: When burning MP3 / WMA files onto a DVD disc, use the 2X or 4X burning option, if available. This slower burning speed will help eliminate buffer errors and increase disc reading reliability. Also, use folders when burning large numbers of songs / files to a disc for easy music navigation. Select the "Disc at Once" option and close your disc.

MP3/WMA Media and File Requirements

This player allows you to play back MP3 and WMA files recorded onto CD-R/RWs, DVD+R/RWs, and DVD-R/RWs. For CD-RW discs, please make sure it is formatted using the full method and not the quick method to prevent illegal disc operation.

Up to 1500 songs/files can be burned onto a disc for a MEGA DVD music mix. Do not exceed this number of songs/files or disc readability problems may occur.

MP3 Format Compatibility

The file naming formats listed below are compatible with this unit:

- ISO 9660 – file name: 12 characters, file extension: 3 characters
- ISO 9660 – file name: 31 characters, file extension: 3 characters
- Joliet – 64 characters

If the file or folder name does not conform to ISO 9660 file system standards, it may not be displayed or played back correctly. Use the following settings when compressing audio data for your MP3 disc:

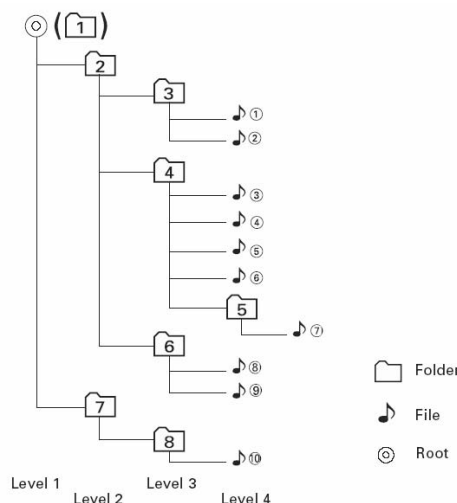
- Transfer Bit Rate: 128kbps
- Sampling Frequency: 48kHz

NOTE: When recording MP3 up to the maximum disc capacity, disable additional writing. For recording on an empty disc up to maximum disc capacity, use the "Disc at once" setting.

MP3 Playing Order

When selected for play, files and folders (Folder Search, File Search or Folder Select) are accessed in the order they were written by the CD writer. As a result, the order in which they are expected to be played may not match the order in which they are actually played. You may be able to set the order in which MP3/WMA files are to be played by writing them onto a medium such as a CD-R with their file names beginning with play sequence numbers such as "01" to "99".

For example, a medium with the following folder/file hierarchy is subject to Folder Search, File Search or Folder Select, as shown below.

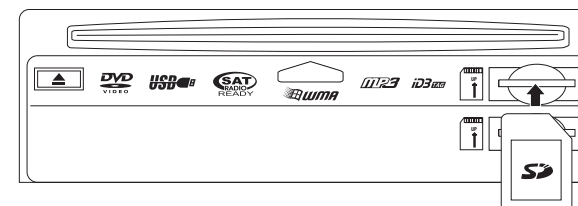


The VM9022HDN player will only recognize three folder levels and does not display folders containing only other folders. In the example above, the unit will display folders 3, 4, 6, and 8, but not 2 and 7 since they do not contain any tracks directly. Folder 5 is not recognized at all since it is at the fourth level.

Loading an SD Card

NOTE: The VM9022HDN will support up to 4GB SD Cards. SD Cards larger than this (SDHC Cards) will not be recognized.

To Insert an SD card, you must first press the **OPEN** button (1) on the control panel or the **OPEN/CLOSE** button on the remote control to reveal the SD card slot (21). Insert the SD card into the card slot and the unit will read the audio media files on the card automatically.

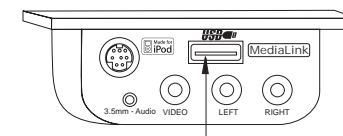


To remove the card, first press the **SRC** button (6) to switch to another mode and stop SD playback. Grasp the SD card and pull it straight out. Most cards have a thin recess that helps with removal.

Loading a USB Device

NOTE: The USB port will recognize most USB flash memory devices, as well as portable hard drives with audio / video files. The hard drive must be formatted to FAT32. The head unit operating system does not support NTFS file structure.

1. Locate the USB jack located on the MediaLink⁴.



Type A USB Connector

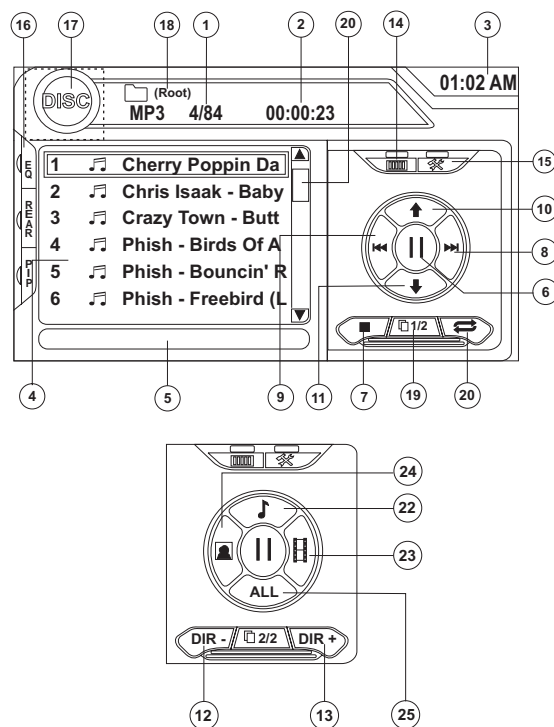
2. Insert the USB device into the USB connector. The unit will read the audio media files on the USB device automatically.

2. Insert the USB device into the USB connector. The unit will read the audio media files on the USB device automatically.

To remove the USB device, press the **SRC** button (6) to switch to another mode and then remove the USB device from the USB connector.

MP3 User Interface

The on-screen indicators and touch key areas for MP3 playback are outlined below.



1. Current track and total number of tracks on root of disc
2. Elapsed playing time, track length
3. Current time
4. Track titles
5. ID3 information
6. || : Touch to play/pause disc playback
7. ■: Touch to stop disc playback
8. >>|: Touch to move to next track
9. |<<: Touch to move to previous track
10. ↗/↖: Touch to navigate playlist/touch to fast forward

11. ↗/↖: Touch to navigate playlist/touch to fast rewind or reverse
12. DIR -: Touch to view the previous folder
13. DIR +: Touch to view the next folder
14. Touch to access the direct entry screen
15. Touch to view the SETUP menu
16. Touch to view Spectrum Analyzer > Equalizer
17. Touch to view the SOURCE MENU and select a new playback source
18. Folder name
19. 1/2 or 2/2: Touch this page button to view a second page of on-screen buttons
20. Touch the scroll bar and arrows to view the previous/next page of songs
21. Touch to activate/deactivate Repeat play mode
22. Touch to access the Music menu
23. Touch to access the Video menu
24. Touch to access the Photo menu
25. Browse all files

Controlling MP3/WMA Disc Playback

Playing MP3/WMA Files

After inserting a MP3/WMA disc, files will play in the sequence of the "Root" directory.

NOTE: When burning MP3 / WMA files onto a DVD disc, use the 2X or 4X burning option, if available. This slower burning speed will help eliminate buffer errors and increase disc reading reliability. Also, use folders when burning large numbers of songs / files to a disc for easy music navigation. Select the "Disc at Once" option and close your disc.

Stopping Playback

Touch the ■ button on screen or press the ■/BAND button (20) on the remote control to stop disc playback.

To resume playback, touch the ► button on screen, press the joystick button (13) on the front panel, or press the >|| button (18) on the remote control.

Pausing Playback

Touch the ► button on screen, press the joystick button (13) on the front panel, or press the >|| button (18) on the remote control to suspend or resume disc playback.

Moving Through Tracks

Press the >>| button (19) on the remote control or on screen or use the > button on the joystick (14) to advance to the next track on the disc.

Press the |<< button (17) on the remote control or on screen or use the < button on the joystick (10) to move to the previous track.

Repeat Playback

Touch the ⇌ button on screen, press the RPT button (19) on the control panel or press the RPT button (7) on the remote control to alter repeat mode according to the following: Repeat Single, Folder Repeat, Repeat Off.

Random Play Select

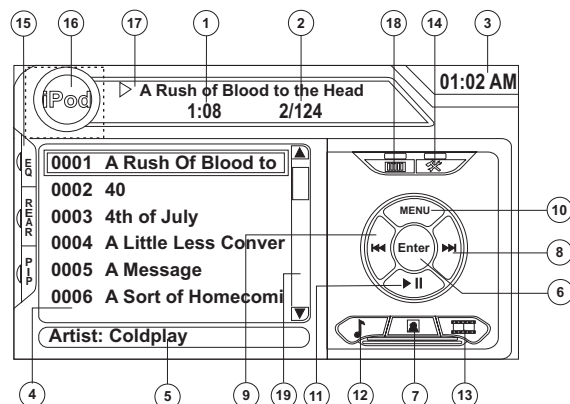
Press the RDM button (33) on the remote control to play the files on the disc in a random, shuffled order. Press RDM again to cancel Random Play mode.

NOTE: CD-R and CD-RW will not play unless the recording session is finalized.

iPod OPERATION

iPod User Interface

The on-screen indicators and touch key areas for iPod playback are outlined below.



1. Elapsed playing time
2. Current track and total number of files
3. Current time
4. Media titles/menu information
5. ID3 information
6. Enter
7. Touch to access photos
8. >>|: Touch to move to next track
9. |<<: Touch to move to previous track
10. Touch to access the iPod menu
11. >||: Touch to play/pause disc playback
12. Touch to access music files
13. Touch to access video files
14. Touch to access the SETUP screen
15. Touch to view Spectrum Analyzer > Equalizer
16. Touch to view the SOURCE MENU and select a new playback source
17. Song title
18. Touch to view the direct entry menu
19. Touch the scroll bar and arrows to view the previous/next page of songs

Controlling Your iPod

The unit will automatically switch to iPod mode when an iPod is plugged into the MediaLink⁴. To return to the iPod menu from any other source menu, press the **SRC** button (6) on the front panel or remote control (8) until the iPod menu appears on the screen.

NOTE: Be sure your iPod has the latest Apple firmware installed to avoid connectivity issues.

The following touch screen icons and remote control buttons are used to access the iPod menus:

| Menu | Touch Screen | Remote Control |
|--------|--------------|----------------|
| Music | | AUDIO |
| Photos | | SUB-TITLE |
| Videos | | ANGLE |

Use the touchscreen, the joystick, or the directional keys on the remote control to navigate the iPod menus.

iPod Music Playback

To access iPod music files, touch the button on screen or press the **AUDIO** button (5) on the remote control.

- Touch the > || button on screen to play/pause.
- Touch >>| on screen, press the >>| button (19) on the remote control, or press the > button on the joystick (17) to move to the next item on the menu.
- Touch |<< on screen, press the |<< button (17) on the remote control, or press the < button on the joystick (16) to move to the previous item on the menu.
- Use the touch screen or press the >|| button (18) on the remote control or the joystick **Enter** button (20) on the control panel to select the highlighted menu option.
- Press the >> button (14) on the remote control or the **Λ** button (18) on the joystick, or touch the **MENU** button on screen to return to the previous menu.

Fast Forward/Fast Reverse

Press and hold the |<< or >>| buttons on screen or on the remote control (17, 19) for 1 second and continue to hold for fast forward or fast reverse. Release to resume normal playback.

Photo Playback

While iPod photos can be viewed on the VM9022HDN screen, you must use the iPod to control photo playback options.

Touch the icon on screen or press the **SUB-TITLE** button (9) on the remote control to access the iPod PHOTO mode. The VM9022HDN will release control back to the iPod so you can select video media to be displayed on the TFT monitor. To exit PHOTO mode, touch the screen.

(Requires Gen 5.5 or earlier photo or video iPod. iPhone, iPod Touch, iPod Classic and iPod Nano with video will only play music files.)

Video Playback

While iPod video can be viewed on the VM9022HDN screen, you must use the iPod to control video playback options.


Touch the button on screen or press the **ANGLE** button (13) on the remote control to access iPod VIDEO mode. The VM9022HDN will release control back to the iPod so you can select video media to be displayed on the TFT monitor. To exit VIDEO mode, touch the screen, press the >> button (14) on the remote control, or press the **MENU** button on the iPod.


(Requires Gen 5.5 or earlier photo or video iPod. iPhone, iPod Touch, iPod Classic and iPod Nano with video will only play music files.)

NOTE: To transmit the video from your iPod to the VM9022HDN screen, you must set the following options through the iPod video settings menu: TV Out = On, TV Signal = NTSC, and Widescreen = On.

NOTE: After disconnecting your iPod, the VM9022HDN will always return to the last mode accessed when the iPod is plugged back into the unit.

Direct Track/File Entry

To select a track/file directly, touch the  button on screen control to display the direct entry menu.



The screen displays a numeric keypad for track/file entry. At the top, a label reads "TRACK: _ _ / ##". The keypad consists of a 4x3 grid of buttons. The first three columns contain digits 1 through 9, and the fourth column contains an "Exit" button. The bottom row contains a "0" button, a "Clear" button, and a left-pointing arrow button. A hand cursor is shown pointing at the "1" button.

| | | | |
|-----------------|-------|---|------|
| TRACK: _ _ / ## | | | |
| 1 | 2 | 3 | Exit |
| 4 | 5 | 6 | |
| 7 | 8 | 9 | ← |
| 0 | Clear | | |

Enter the desired track/file using the on-screen number pad. Press the **Enter** (arrow) button to tune to the selected station. To exit the screen without changing the station, touch **Exit**. To clear your entry and start over, touch **Clear**. You can also use the numeric keypad (29) on the remote control to access files directly.

BLUETOOTH OPERATION

About Bluetooth

Bluetooth is a short-range wireless radio connectivity technology that is developed as a cable replacement for mobile phones, handheld PCs and other devices. Bluetooth operates in 2.4 GHz frequency range and transmits voice and data at speeds up to 1 megabit per second. Bluetooth was launched by a special interest group (SIG) comprised of Ericsson Inc., Intel Corp., Nokia Corp., Toshiba and IBM in 1998, and it is currently developed by nearly 2,000 companies worldwide. The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Audiovox Corporation is under license. Other trademarks and trade names are those of their respective owners.

NOTE: The line-of-sight distance between this unit and your cellular phone must be 8 meters or less for sending and receiving voice and data via Bluetooth wireless technology. However, the transmission distance may become shorter than the estimated distance, depending on the environment in use.

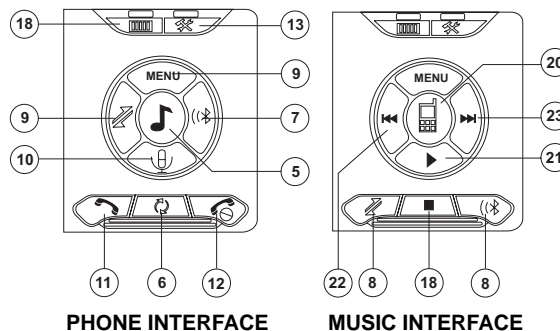
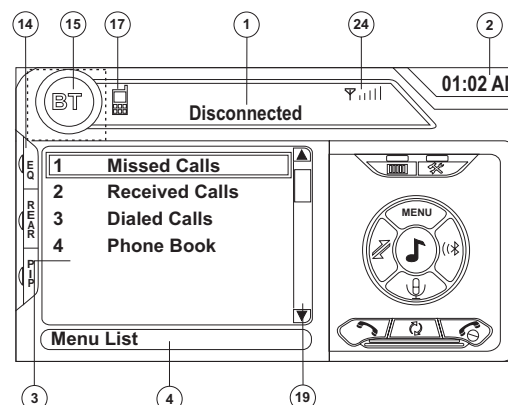
Before attempting to use the Bluetooth functions on the VM9022HDN, please make sure your mobile phone supports Bluetooth functions (Headset or Handsfree profiles or both). Adhere to the following guidelines for successful operation.

- Before using Bluetooth functions, you must pair your mobile phone to the VM9022HDN head unit (see "Pairing the Bluetooth System with Your Mobile Phone and Head Unit"). To ensure the best reception for pairing and reconnection, please make sure the phone battery is fully charged before you begin.
- Try to perform pairing within a few minutes of the phone being turned on.
- Once the unit has been paired with the phone, the unit's model number, "VM9022HDN", will be displayed on the mobile phone.
- To achieve the best performance, always keep the mobile phone within 3 meters of the head unit.
- Always keep a clear path between the mobile phone and the head unit. Never place a metal object or any other obstacle between the mobile phone and the head unit.
- Some mobile phones (like Sony Ericsson) may have a "Power Saving Mode" option. PLEASE DO NOT use the power saving mode with the VM9022HDN.
- Before accepting or making a call, make sure your mobile phone's "Bluetooth function" is turned on.

- To ensure the best conversation quality/performance, stay within one meter of the head unit when talking.
- To "disconnect" the mobile phone from the head unit, turn the Bluetooth connectivity off on the mobile phone.
- **Phone Book direct searching through the head unit is only available if the mobile phone supports Phone Book Download.** If the feature is not supported, the head unit will display "Phone book not provided by this phone" when an attempt is made to download a phone book.

Bluetooth User Interface

The on-screen indicators and touch key areas for Bluetooth operation are outlined below.



1. Current connection status/device connected
2. Current time
3. Bluetooth menu
4. Current operation status
5. Toggle Music/Phone menu
6. Transfer active call back to handset
7. Pair your Bluetooth phone (first time use)
8. Connect/disconnect Bluetooth device (phone, PDA, personal music player, etc.) with hand-free function
9. Exit call listing display
10. Mute/unmute microphone (located on left side of radio) during active call
11. Answer incoming call/make call
12. Reject incoming call/end call/quit pairing process/quit reading phone book or call listing
13. Touch to view the SETUP menu
14. Touch to view Spectrum Analyzer > Equalizer
15. Touch to view the SOURCE MENU and select a new playback source
16. Indicates connection/current operation (--> indicates incoming call, <-- indicates dialing alert)
17. Touch to access the direct entry screen
18. ■: Touch to stop playback
19. Touch the scroll bar and arrows to view the previous/next page of songs
20. Toggle Music/Phone menu/mode
21. Play/Pause selected file
22. |<<: Touch to move to the previous file
23. >>|: Touch to move to the next file
24. Signal strength indicator

Hands Free Profile (HFP)

To use a phone wirelessly with this unit, it is necessary to first establish a connection using Bluetooth wireless technology. Connection is normally established using HFP (Hands Free Profile), which gives you full control of functions available on the telephone source. However, depending on your phone, the connection may be made using HSP (Head Set Profile), making some functions unavailable. This is a limitation of your phone, not the VM9022HDN.

Since there are a number of Bluetooth mobile phone implementations available on the market, operations with your Bluetooth mobile phone using this unit vary greatly. Please refer to the instruction manual that came with your Bluetooth mobile phone along with this manual while operating your phone with this unit.

Pairing the Bluetooth System with Your Mobile Phone and Head Unit

1. Press the (⌂) button (8) to initiate the pairing process. Keep the mobile phone within 2 meters of the head unit when pairing. (To terminate the pairing process, press the (⌂) button again.)
2. Select the Bluetooth setup option on the mobile phone to be paired (please refer to the phone's instruction manual to learn how to enter Bluetooth setup, turn Bluetooth on/off, and perform pairing).

NOTE: Some phones require a "pass key" or pairing code to connect. If your phone requires a pass key or pairing code, you will need to enter this number in the **Pairing Code** field under the **Bluetooth SETUP** menu. The default pairing code for many phones is "0000". The default code for the VM9022HDN is "1234". See "Bluetooth Sub-menu Features" on page 18 for instructions on entering the pairing code.

3. Select "VM9022HDN" from the pairing list on the mobile phone.
 - If pairing is successful, the TFT will display the paired mobile phone model number or name (as specified in your phone's Bluetooth Setup menu).
 - If pairing fails, "Phone Pairing Fail" is displayed at the bottom of the screen.

Reconnecting

Once the Bluetooth device has been paired, you can touch the connect button to reconnect.

NOTE: You can only connect to a phone using the buttons on the on-screen Phone interface.

Each time the button is pressed, the head unit will automatically reconnect with the mobile phone once (only if the mobile phone was previously paired with the head unit).

Managing Incoming Calls

When connected to a Bluetooth phone, the unit will mute audio output, pause CD play, and change to the Bluetooth screen when a call is received. An incoming phone number will appear at the top of the screen.

Answering an Incoming Call

To answer the call, touch the button.

For best reception, speak loudly and clearly. The microphone is located on the left side of the unit.

To end the conversation, press the button. The screen will display the call duration for 3 seconds, and then return to the previous mode.

Rejecting an Incoming Call

Touch the button to reject an incoming call. The call will revert to your phone and can be answered directly or left for voice mail.

Volume Control

To increase or decrease the volume level, turn the rotary encoder (5) on the front panel or press the **VOL+ / VOL-** buttons (15, 16) on the remote control.

Microphone Mute

To mute the microphone, touch the button. Touch again to resume microphone functionality.

Making an Outgoing Call

NOTE: Press the button from the main Bluetooth screen to automatically dial the last call received.

1. Touch the button to open the direct dial screen.

| | | | |
|---|---|---|-------|
| | | | |
| 1 | 2 | 3 | Exit |
| 4 | 5 | 6 | Clear |
| 7 | 8 | 9 | |
| * | 0 | # | |

2. Use the 0-9, *, and # buttons to input the phone number.
 - Touch the **CLEAR** button to clear the last digit.
 - Touch the button to clear the entire number and start over.
3. After entering the phone number, press the button to dial the call. The direct dial screen will close once your call is connected.

To end the conversation, press the button.

Call Transfer

While talking, to transfer audio from the head unit back to the mobile phone, touch the button (7). The TFT will display "Transfer". You can only transfer a call after it has been answered.

Menu List

The menu list appears on the left side of the screen and can be accessed from other modes by touching the **MENU** button on the right side of the screen.

NOTE: Not all phones allow access to missed, received or dialed calls and some will not allow uploading of your phone's address book.

Missed Calls

The Missed Calls list retrieves the list of Missed numbers from your phone. The last missed number is the first number on the list. Touch the Missed Calls menu option to view the list. To make a call from the Missed Calls list, touch the number and then touch the button. The TFT will display "Cannot get missed record" when the feature is not available.

Dialed Calls


The Dialed Calls list retrieves the list of dialed numbers from your phone. The last dialed number is the first number on the list. Touch the Dialed Calls menu option to view the list. To make a call from the Dialed Calls list, touch the number and then touch the button. The TFT will display "Cannot get dialed record" when the feature is not available.

Received Calls

Use the Received Calls list to view the last 10 received numbers stored on your phone. To access the Received list, touch the Received Calls menu option. The last received number is the first number on the list. To make a call from the Received Calls list, touch the number and then touch the button. The TFT will display "Cannot get received record" when the feature is not available.

Phone Book

1. Touch the Phone Book menu option to display the phone book stored on your mobile phone, if compatible. The screen will display "Ready..." while the phone book is downloading.
2. Once the download is completed, you can use the arrow buttons and scroll bar on the right side of the window to navigate the list. Since the unit downloads one page of entries at a time, there may be a slight delay while the next page of numbers is downloaded.


3. Touch to highlight the number you want to dial and then touch the  button.

NOTE: Some mobile phones do not support Phone Book upload through Bluetooth. This is a limitation of the phone, not the VM9022HDN.

Bluetooth Setup


Auto Answer


You can choose to have the VM9022HDN automatically answer incoming calls to your paired Bluetooth phone. To turn "Auto answer" on:

1. Touch the  button to view the SETUP menu.
2. Select the "Bluetooth" sub-menu.
3. Touch the area to the right of "Auto answer" to select "On".

Auto Connect

The auto Connect option will allow the VM9022HDN to automatically connect to your previously paired Bluetooth when it is in range. When the Connect option is set to

"Manual", you must press the  button to re-establish a connection with your phone. To turn auto "Connect" on:

1. Touch the  button to view the SETUP menu.
2. Select the "Bluetooth" sub-menu.
3. Touch the area to the right of "Connect" to select "Auto".

Advanced Audio Distribution Profile (A2DP)

The VM9022HDN allows you to play back audio files from your phone, PDA or personal music player using a Bluetooth connection.

Before using an audio player, it may be necessary to enter a PIN code into the unit. Enter the PIN code referring to "Bluetooth Sub-menu Features" on page 18.

NOTE: Please quit A2DP mode before attempting to make a phone call, as unexpected results may occur depending on your mobile phone model.

The VM9022HDN can control a Bluetooth audio player via Advanced Audio Distribution Profile (A2DP) or Audio/Video Remote Control Profile (AVRCP). Bluetooth audio players (or Bluetooth adapters) compatible with these profiles can be connected to this unit. Functionality varies depending on the profile used:

- A2DP: Stream audio from your Bluetooth compatible audio player and listen to the music through your VM9022HDN. Play/pause, song selection, etc. are not possible.
- AVRCP: Play back, pause, select songs, etc. while streaming audio from your Bluetooth compatible audio player to the VM9022HDN.

NOTE: Song information (e.g. elapsed playing time, song title, song index, etc.) cannot be displayed on this unit.

Since there are a number of Bluetooth audio players available on the market, operations with your Bluetooth audio player using this unit vary greatly.

Please refer to the instruction manual that came with your Bluetooth audio player as well as this manual while operating your player with the VM9022HDN.

Refer to the MUSIC INTERFACE instructions under "Bluetooth User Interface" on page 32 for information about on-screen indicators and touch screen functions that *may* be available during audio playback.

TROUBLESHOOTING

Table 7: Troubleshooting

| Problem | Cause | Corrective Action |
|--|--|---|
| GENERAL | | |
| Unit will not power on | Radio Fuse blown | Install new fuse with correct rating |
| | Car battery fuse blown | Install new fuse with correct rating |
| | Illegal operation | Press the RESET button located in the bottom right corner of the front panel |
| Remote control does not function | Battery depleted | Replace battery with new one |
| | Battery installed incorrectly | Remove battery and install correctly |
| No/low audio output | Improper audio output connection | Check wiring and correct |
| | Volume set too low | Increase volume level |
| | Improper "MUTE" connection | Review wiring diagram and check "MUTE" connection |
| | Speakers damaged | Replace speakers |
| | Heavily biased volume balance | Adjust the channel balance to the center position |
| | Speaker wiring is in contact with metal part of car | Insulate all speaker wiring connections |
| Poor sound quality or distortion | Pirated disc is in use | Use original copy |
| | Speaker power rating not compatible with unit | Connect proper speakers |
| | Speaker is shorted | Check speaker contact |
| Tel-Mute malfunction | "MUTE" wire is grounded | Check that the "MUTE" connection is not grounded and that it's properly insulated |
| Unit resets itself when engine is off | Incorrect connection between ACC and positive battery wire | Check wiring and correct |
| TFT MONITOR | | |
| No image | Incorrect connection to parking brake wire | Check wiring and correct |
| | PRK SW is activated and parking brake is not engaged | Stop vehicle in safe place and apply parking brake |
| Flashing image or interference appears on screen | DVD is not compatible with current TV system settings | Change setup to accommodate disc |
| | Improper video signal connections | Check wiring and correct |
| Prolonged image or improper height/width ratio display | Improper aspect ratio setup | Use correct aspect ratio setting |
| Monitor stops at incorrect position | Moving path is blocked | Press OPEN key to restart monitor movement |
| TUNER | | |
| Weak station searching | Auto antenna is not fully extended | Connect the auto antenna control cable properly |
| | Auto antenna not properly connected | Connect the auto antenna control cable properly |
| | LOCAL function is activated | Turn LOCAL function off |
| CD/DVD | | |
| Cannot insert disc | Disc already inside unit | Eject current disc and insert new one |

Table 7: Troubleshooting

| Problem | Cause | Corrective Action |
|--|--|--|
| Disc does not play back | Disc is warped or scratched | Use disc in good condition |
| | Disc is dirty or wet | Clean disc with soft cloth |
| | Laser pickup is dirty | Clean laser pickup with cleaning disc |
| | Incompatible disc is used | Use compatible disc |
| | Disc rating exceeds Parental Lock rating limit | Change Parental Lock settings to lower restriction |
| | Disc region code is not compatible with unit | Use disc with proper region code |
| | Disc is inserted upside down | Insert disc with label side up |
| Image blurred, distorted, or dark | Disc is illegally copied | Use original disc |
| PBC cannot be used during VCD playback | PCB is not available on the disc | |
| No repeat or searching while playing VCD | PCB is on | Turn PCB off |
| MP3 | | |
| Interruption occurred during playback | Disc is dirty or scratched | Clean disc or replace |
| | File is damaged/bad recording | Recreate disc with good files |
| Incorrect playback message displayed | Message is longer than screen can display | |
| SAT RADIO | | |
| No Sound | Incorrect cable connections | Check RCA cables |
| Satellite source not available | Incorrect cable connections | Check Satellite Data cable |
| IPOD | | |
| iPod source not available | Incorrect cable connections | Check jLink and MediaLink cables |
| Cannot see video and photo media on TFT screen | Wrong iPod Video Settings | Change iPod video settings to TV Out = On |

Error Messages

Table 8: Error Messages

| Message Displayed | Cause | Corrective Action |
|-------------------|--|--|
| Loading | Disc is being read | |
| No Disc | Disc is dirty | Clean disc with soft cloth |
| | Disc is upside down | Insert disc with label side up |
| | Disc not present in loading compartment | Insert disc |
| Bad Disc | Disc is dirty | Clean disc with soft cloth |
| | Disc is upside down | Insert disc with label side up |
| Unknown disc | Disc format is not compatible with this unit | |
| Region Error | DVD is not compatible with region code of unit | |
| Error | Illegal mechanism operation | Press EJECT key for 5 seconds to reset loading mechanism |

Care and Maintenance

1. Use only a clean silicone cloth and neutral detergent to clean the front panel or monitor. A rough cloth and non-neutral detergent (such as alcohol) may result in scratching or discoloration.
2. Do not get water or cleaning fluids on the unit.
3. If the temperature inside the player gets too hot, a protective circuit automatically stops play of the disc. If this occurs, allow the unit to cool before operating the player again.
4. Never insert anything other than a 5" (12 cm) disc into the player as the mechanism can be damaged by foreign objects.
5. Do not attempt to use a 3" (8 cm) CD-Single disc in this unit, either with or without an adaptor, as damage to the player and/or disc may occur. Such damage is not covered by the Warranty on this product.
6. The CD player may not operate properly in extreme hot or cold. If such conditions occur, allow the interior of the vehicle to reach a normal temperature before using player.
7. When the vehicle warms up during cold weather or under damp conditions, condensation may appear on the screen. Should this occur, the screen will not operate properly until the moisture has evaporated.
8. We suggest you use a cleaning disc in this unit more frequently than in the unit in your home due to the environmental conditions of the vehicle.

SPECIFICATIONS

DVD/CD Player

Compatible Disc Media: DVD + R / RW (Single and Dual Layer) and CD-R / RW
 Compatible Formats: CD-DA, MP3, WMA, VCD, SVCD, AVI, MPEG 2, XviD and Kodak picture CD (JPEG)
 Signal to Noise Ratio: >95dBA
 Dynamic Range: >95dB
 Frequency Response: 20Hz to 20 kHz, -3dB
 Channel Separation: > 60dB @ 1 kHz
 D/A Converter: High performance 24-bit / 192 kHz sample rate, Multi-Bit Sigma-Delta Modulator

Video

Format: NTSC / PAL
 Output: 1Vp-p, 75-ohm
 Input: 1Vp-p, 75-ohm

FM Analog Tuner

Tuning Range: 87.5MHz - 107.9MHz
 Mono Sensitivity (-30dB): 9dBf
 Quieting Sensitivity (-50dB): 15dBf
 Alternate Channel Selectivity: 70dB
 Signal to Noise Ratio @ 1 kHz: 58dB
 Image Rejection: 80dB
 Stereo Separation @ 1 kHz: >30dB
 Frequency Response: 30Hz - 15 kHz, -3dB

HD Radio Tuner

FM: Hybrid -89 dbm, (40 dBf), All Digital -112 dBm (17dBf)
 AM: Hybrid -93, dBm, (36 dBf), All Digital -103 dBm (25dBf)
 Stereo Separation: 70 dB
 Audio THD: .4%
 Frequency Response (+/-3dB) 20 Hz - 18 kHz
 Signal-to-Noise Ratio (Stereo): 70 dB

AM Tuner

Tuning Range: 530 kHz - 1710 kHz
 Sensitivity (-20dB): 15uV
 Signal to Noise Ratio @ 1 kHz: 50dB
 Image Rejection: 60dB
 Frequency Response: 50Hz - 2 kHz, -3dB

Monitor

Screen Size: 6.5" (Measured diagonally), 16:9 Widescreen
 • 6.1" (155mm) W X 3.51" (89.2mm) H
 Screen Type: TFT Liquid Crystal Display (LCD) active matrix
 Response Time: 30mSec rise time, 50mSec fall time
 Resolution:
 • 280,800 sub pixels, 1200 (W) X 234 (H)
 Viewing angle:
 • 60 degrees left or right
 • 40 degrees up

- 55 degrees down

General

Auxiliary Input Impedance: 10k-ohm
 Power Supply: 11 to 16VDC, Negative Ground
 Power Antenna (Blue): 500mA max, Current Limited Protection
 Amplifier Remote (Blue / White): 500mA max, Current Limited Protection
 Operating Temperature: -20C ~ 65C
 Fuse: 20-Amp, Mini ATM Type
 DIN Chassis Dimensions: 7" X 7" X 4" (178mm x 178mm x 100mm)

CEA Power Ratings



Main Amplifier Power Output:

18 Watts RMS x 4 channels into 4-Ohms @ < 1% THD+N
 Signal to Noise Ratio: 70dBA below reference (Reference: 1 Watt, 4-Ohms)
 Frequency Response: 20 Hz - 20 kHz, -3dB
 Reference Supply Voltage: 14.4VDC

Center Amplifier Power Output:

22 watts RMS X 1 channels into 4-Ohms @ < 1% THD+N
 Signal to Noise Ratio: 70dBA below reference (reference: 1 watt, 4-Ohms)
 Frequency Response: 20Hz to 20 kHz, -3dB
 Reference Supply Voltage: 14.4VDC

**Specifications subject to change without notice.*

INTRODUCTION

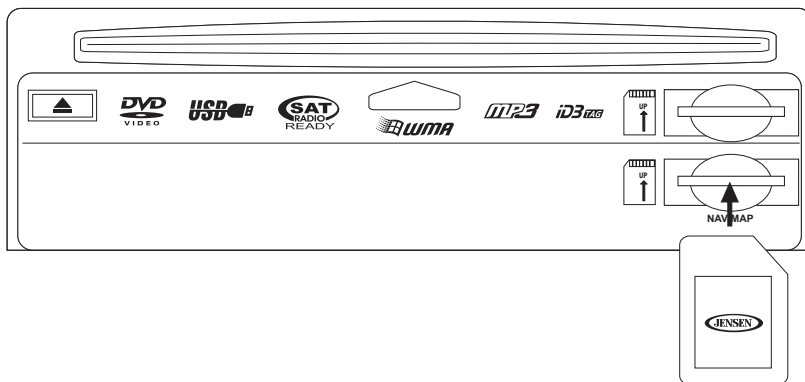
The VM9022HDN navigation module leads you straight to your destination. You can navigate and plan your route with an easy-to-use and intuitive interface, plan your trip to suit your personal preferences and interests, and find and save (bookmark) interesting destinations before you begin your trip.

Key Features

- S.M.A.R.T.TM - (Smart Mapping Avoids Routine Traffic) enables you to navigate around heavy traffic areas with ease. (S.M.A.R.T. Route Guidance)
- Powered by gate5 / Nokia Smart2Go
- Teleatlas Map Data
- > 4 million POI (Point Of Interest)
- Speed Sensitive Zoom
- Enhanced Female TTS Voice Guidance Engine
- Standard Male / Female Voice Guidance Engine
- Turn by Turn Voice Guidance
- Back-Up Data DVD

Smart2Go Navigation / Tele Atlas Map Data

The VM9022HDN Jensen 2GB SD card is pre-loaded with the Smart2Go navigation engine and Tele Atlas map data. The map data covers the continental US, Canada, Alaska, Hawaii and Puerto Rico. Insert the Jensen 2GB SD card into the NAV/MAP SD slot located behind the front panel and gently press the card in against the spring latch until it stops, then release. The card will "lock" firmly into place inside the SD card slot.



About GPS and GNSS

The navigation module is a vehicle GPS (Global Positioning Satellite)-based navigation system which utilizes digital map data to guide you from your selected location A to location B, using location information obtained from a Global Navigation Satellite System (GNSS).

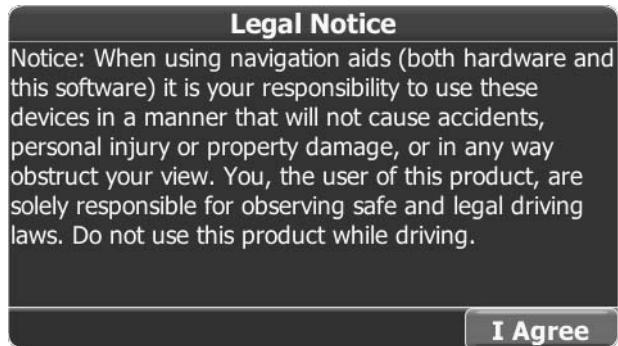
A GNSS consists of a set of satellites that transmit high-frequency radio signals containing time, direction, and distance data that can be picked up by a receiver, allowing users to pinpoint their precise locations anywhere around the globe. Navigation Satellite Receivers (GPS devices) use this transmitted information to calculate an exact location on the earth. Every point on Earth can be identified by latitude and longitude. The receiver uses the information sent by at least three satellites and determines the coordinates of the receiving device.

By comparing the time the signals were transmitted from the satellites and the time they were recorded, the receiver calculates how far away each satellite is. The distance of the receiver from three or more satellites reflects its position on the surface of the planet. Using these distance measurements, the receiver might also be able to calculate speed, bearing, trip time, distance to destination, altitude, etc. The GPS position may be displayed as a point on a digital map (at least three satellites' signals must be received) and as the GPS device moves the corresponding trace is displayed as well.

Please keep in mind that although the radio signals of navigation satellites will pass through clouds, glass, plastic, and other lightweight materials, satellite-navigation receivers will not work underground or in some enclosed spaces.

SAFETY INFORMATION

When the NAV source is first selected, the following message appears:



You must agree to the above notice before operating the navigation module.

The following safety rules must be followed to prevent accidents that can result in injury or death to yourself or others:

- The driver should operate the device only when the vehicle is stopped. Only a vehicle passenger should operate the device while the vehicle is moving. When driving, the need to view the display is minimal. Voice prompts will guide you to your destinations.
 - It is your responsibility to comply with all traffic laws.
 - The navigation module is designed to assist you in the process of reaching your destination. It is not a substitute for attentiveness and good judgement. It is your responsibility to disregard any unsafe, hazardous, or illegal route suggestions.
 - The device does not include, analyze, process, consider, or reflect any of the following:
 - a. Legal restrictions (such as vehicular type, weight, height, width, load and speed restrictions);
 - b. Road slope or grade, bridge height, width, weight, or other limits;
 - c. Population density;
 - d. Neighborhood quality or safety;
 - e. Availability or proximity of law enforcement, emergency rescue, medical, or other assistance;
 - f. Construction work zones or hazards;
 - g. Road or lane closures;
 - h. Road, traffic, or traffic facilities' safety or condition;
 - i. Weather conditions;
 - j. Pavement characteristics or conditions;
 - k. Special events;
 - l. Traffic congestion.
 - While every attempt is made to ensure that the database is accurate, roadways, points of interest, and business and service locations may change over time.
 - Do not use the VM9022HDN to navigate to a police station, hospital, etc. in an emergency. Call 911 for assistance.
- Laws in some states prohibit wearing stereo headphones or may prohibit use or placement of a navigation device while operating a motor vehicle. Please contact your state's Department of Motor Vehicles for information.

GETTING STARTED

The initial GPS location lock is best established when your vehicle is parked. If the device is in motion, the signal can take longer to initially connect. Once the initial coordinates are established, the software will follow you as you move and navigate.

NOTE: *It may take up to 5 minutes to establish the first connection. Subsequent connections will be faster (30 seconds to 1 minute), but if you have not used the unit for several days or are very far away from the last location you used it, it may take up to 5 minutes again to find a strong signal.*

Set time zone

The navigation module automatically determines the time through the GPS signal. However, you must set your time zone.

- Select your time zone from the list. You can change the time zone later (see “General Settings” on page 52).
- Press the confirmation icon.

View Safety Precautions

Next, a screen with safety precautions will be shown.

1. Read the safety precautions.
2. Press “I Agree” to continue to the Main Menu.

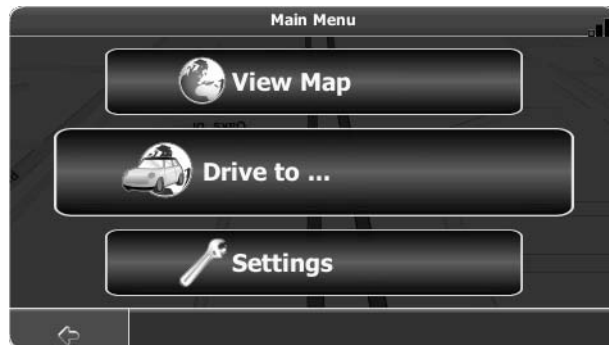
Selecting a Source while Navigating

While navigating, other sources may be selected and listened to such as AM-FM Tuner, CD, etc. To select a source, press the **SRC** button on your Jensen head unit and then select a source from the Front Source Menu. Navigation voice prompts will be heard automatically, although the navigation map cannot be seen. (The selected source audio will be muted until the navigation voice prompt command is completed, after which the source audio will resume.)

MAIN NAVIGATION FEATURES

Main Menu

The main menu is your central point of access to all functions of your navigation module. It allows you to set your destination, manage your favorites and control all settings of your device.



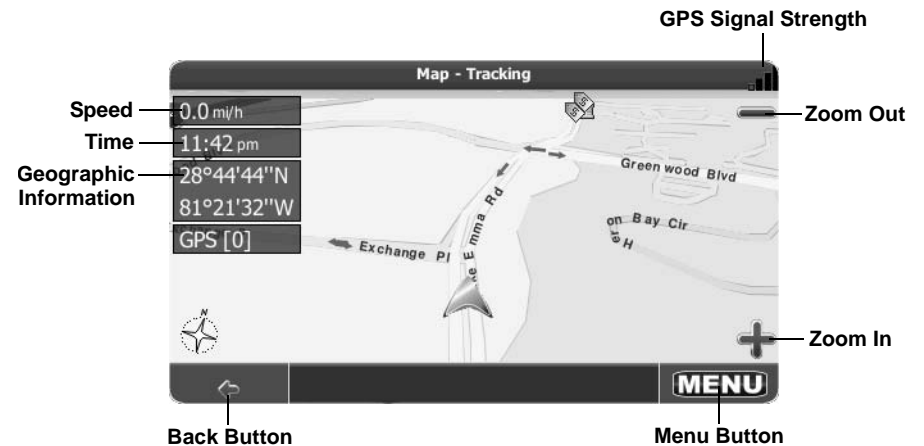
The "Main Menu" consists of the following options:

- **View Map:** Press to view your current location on the Tracking Map.
- **Drive to...:** Choose your destination – either by searching for an address, choosing an entry from the POI (point of interest) directory, selecting a location from the map, or by choosing a destination from a saved list of recently visited locations or favorites (see "Choosing and Finding Locations" on page 44).
- **Settings:** Configure your navigation to suit your needs. Define general settings (e.g. time, language, or system of measurement), configure your map (e.g. 2D or 3D mode, day or night mode, map complexity) or load a map of a different region, set the route options (e.g. choose to avoid or allow toll roads or ferries, or change the volume (see "Settings Menu" on page 52).

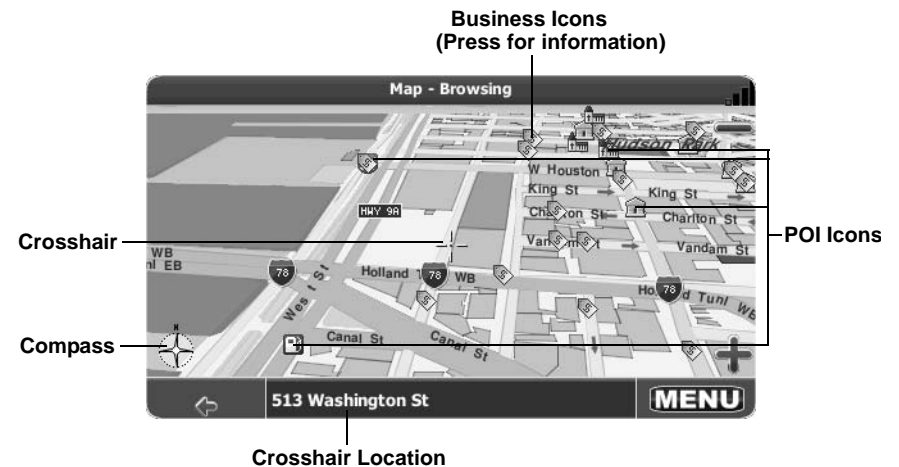
Map Tracking and Browsing

The map is the core component of your navigation module. It will be centered on your current location by default, provided you have a GPS connection. You can browse the map, display information about the different locations shown on it and choose them for routing and navigating. The map knows two basic states, the Tracking and the Browsing mode.


In Tracking mode, the map follows your actual position (GPS position), displaying information about your geographic position, your speed, etc. The GPS position is indicated by a green arrow.



Use a stylus or your finger to browse the map and enter Browsing mode. The selected position will be identified by a crosshair cursor. The screen is highlighted in orange when in Browsing mode.

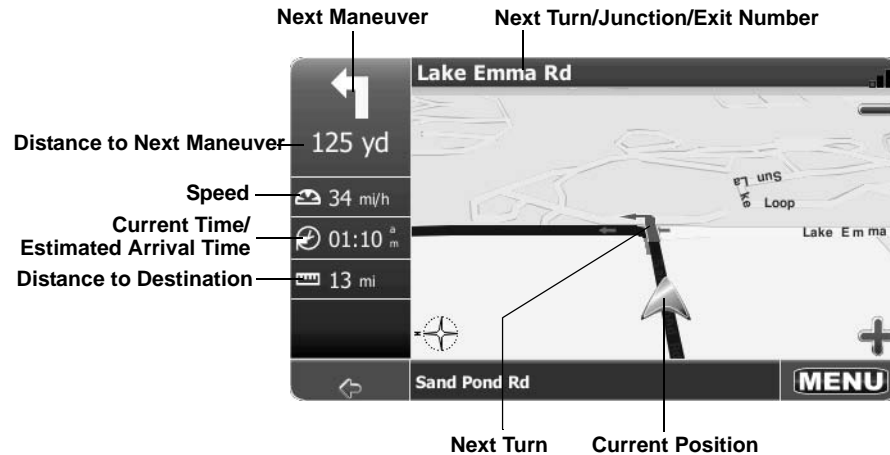


NOTE: Pressing an icon on the map opens an overlay window with information about the selected item.

- To zoom in or out, press the + or – icons. After pressing one of the icons, the zoom slider will appear, enabling smooth zooming.
- With the compass icon (in the bottom left hand corner) you may adjust the orientation.
- If you want to return to the tracking mode, press the  button.

Navigation Screen

The navigation screen displays your route (in blue) and your surroundings. A green arrow identifies your current position. The red arrow will indicate the direction of your next turn. The upcoming maneuver is also visualized in the upper left corner, along with the distance to that turn. When you come up to a turn, you will hear a voice command at the appropriate time.



On the left, additional information, including the current and estimated arrival time and the distance to your destination, is displayed.

For one-way streets, the transit direction is indicated with a red arrow.

For more information about navigation, see "Navigating" on page 48.

CHOOSING AND FINDING LOCATIONS

This section describes the different ways of finding and choosing locations. You can search for an Address, search POI (Point of Interest) directories and city guides, select a recent destination or choose from your Address Book, or select a location on the Map.

NOTE: If a route is in progress when you exit the NAV source, the unit will prompt “Do you want to resume the last route?” when you resume operation.

Finding an Address

Find addresses through the Address search. Just enter information about the desired target, select a hit from the results list and use the address found for different purposes, like showing it on a map, planning your route, and navigating.

1. From the main menu, press **Drive to...**
2. Press **Address**. The “Find Address” window will be displayed:

- Your navigation module offers a convenient interactive look-ahead search function to prevent misspelling. Only keys that lead to a search result can be pressed – all others are greyed out.

- After entering the second character, only letters that can be used to spell an existing destination will be available for selection of the third character, the fourth character, and so on.

- Continue entering characters until you have narrowed down the search to only one result, or press the **OK** button to display a list of search results, from which you can choose.
 - If at any point you want to backspace and delete characters, press the backspace button (<-) on screen.
 - To add a space, press the space bar (_).
 - If you need to enter an apostrophe ('), use the space key instead.
3. Select a State/Prov.
 - a. Press the “State/Prov.” data field to access the “Select State” screen.
 - b. Choose a state from the list by pressing to highlight it. Use the scroll bar on the right of the screen to view all of the choices.
 - c. Press the **OK** button to choose the highlighted State/Prov. and return to the “Find Address” screen.
 4. Select a City.
 - a. Press the “City” data field to access the “Enter...” screen.
 - b. Use the on-screen keypad to enter the City name. If the first two characters are not part of an existing City name, “No entries found” appears on the screen.
 - c. Press the **OK** button to select the entered name or select from a list of matches based on the letters you entered.
 - d. Press the **OK** button to choose the highlighted City and return to the “Find Address” screen.
 5. Select a Street.
 - a. Press the “Street” data field to access the “Enter...” screen.
 - b. Use the on-screen keypad to enter the Street name. If the first two characters are not part of an existing Street name, “No entries found” appears on the screen.
 - c. Press the **OK** button to select the entered name or select from a list of matches based on the letters you entered.
 - d. Press the **OK** button to choose the highlighted Street and return to the “Find Address” screen.
 6. Select a street No.

- a. Press the "No." data field to access the "Enter..." screen.
 - b. Use the on-screen keypad to enter the street Number.
 - c. Press the **OK** button to enter the street Number. If the Number you entered is not an existing street Number, "House number not found. Street will be used for destination." appears on the screen. You will automatically return to the "Find Address" screen.
7. Press the **MENU** button to view the following screen:



- To navigate to the location, select **Navigate**.
- To use the location for planning a route, select **Waypoint**.
- To save the location as a bookmark, select **Save**.
- To view the location on the map, select **On Map**.

Searching for and Choosing a POI (Point Of Interest)

The POI finder allows you to quickly find points of interest, like gas stations and restaurants, in a database of millions of POIs. These places can be near your current position (the default) or at any other location.

Browse POIs

1. From the main menu, press **POI Search**. The "POI Search" window will be displayed:



2. Select an area for the POI search. Although the text in the white "Where?" box shows your current location, you must press the **Where?** button to set your current location for the POI search or enter a new location.

NOTE: The first time the POI search is used, the default location will be New York City. You must press the Where? button to choose your current location or specify another location.

- a. To search for a POI in another location, press the "Where?" button. A screen with navigation options appears.



- b. Press the corresponding button to search for a new address using the "Enter..." screen (Find Address), My Address Book, or your current GPS Position. To skip this step and return to the "POI Search" screen press **Back**.
3. On the "POI Search" screen, select one of the following POI categories: Automotive, Overnight, Dining, Sights, Shopping, Leisure, Service, Transport. A menu with sub-categories will be shown.



- Select a sub-category from the POI Search list. A list of POIs will be shown.



- Use the scroll bar on the right side of the screen to see all of the choices.
 - To return to the previous category, press the button.
- Press a POI to select it and display the following navigation options:



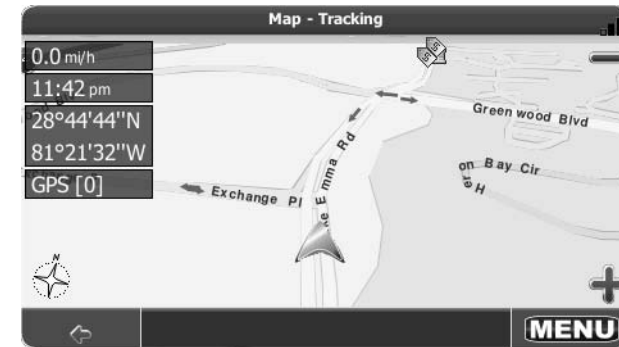
- To navigate to the location, select **Navigate**.
- To use the location for planning a route, select **Waypoint**.
- To save the location as a bookmark, select **Save**.
- To view the location on the map, select **On Map**.
- Press **Description** to view detailed information about the chosen POI, including address and telephone number, when available.

Search POIs

- To search for a POI, return to the "POI Search" screen and press the **ABC** button. The "Enter..." screen will appear.
- Enter the search keyword (at least three characters), and press the **OK** button. A list of POIs beginning with the search keyword appears on the screen. (If there are no POIs containing your search criteria, "No entries found." appears on the screen.)
- Press the POI to select it and view navigation options. Continue navigation as instructed in the previous section.

Choosing a Location on the Map

- From the "Main Menu", press **View Map**. The "Map - Tracking" window will be displayed, indicating your last location:



- Press any part of the map area to enter browsing mode and navigate the map. During browsing, the map screen borders will turn orange. Use the +/- buttons to zoom in/out. Point the cursor at any location on the map to view location information in a pop-up box.



- Press the **MENU** button to view navigation options for the selected destination.

Navigating to a Recent Location

- From the "Main Menu", select **Drive to...**

2. From the "Drive to..." menu, select **Recents**. A list of recent locations will appear on the screen:
5. Continue navigation as instructed in the previous sections.



3. Press to select a recent destination from the "Recents" list. (Use the scroll bar on the right side of the screen to see all of the choices.) A screen with navigation options appears.
4. Continue navigation as instructed in the previous sections.

NOTE: The "Recents" list stores the last 15 addresses or destinations. After 15 entries, the oldest destination will be deleted and the newest entry added to the top of the list. Recent addresses cannot be deleted manually.

Choosing a Location from your Address Book

1. From the "Main Menu", select **Drive to....**
2. From the "Drive to..." menu, select **My Address Book**. The "My Address Book" screen will be displayed:



3. Select one of the following Address Book categories: Home and Work, Favorites, Trips. The "Home and Work", "Favorites" or "Trips" screen will appear, depending on your selection.
4. Press a bookmarked location to select it and display available navigation options.

NAVIGATING

The powerful navigation capabilities of your VM9022HDN will guide you along the shortest or quickest route from A to B – with voice commands and in 3D (optional).

To begin navigation, select a location using the **Drive to...** feature (see “Choosing and Finding Locations” on page 44).

Using the Guidance Menu

To view available menu options during navigation, press the **MENU** button. The “Guidance Menu” appears on the screen:



Alt. route

With this option, you can choose to block the calculated route for a given distance (e.g., 0.5 mile) and force an alternate route. Simply tap on the icon which shows the desired distance to block. Your route will be recalculated, and the previous route will be discarded for the given distance.

Turn by Turn

Opens the list of the waypoints (turns) along your route.

Save

Save your present position as a favorite.

Volume

Alter the volume of the voice commands.

Search (POI)


Redirect your route by adding a point of interest (POI) stop, e.g., a gas station.

Settings

Change the device settings as described in “Settings Menu” on page 52.

Browsing the Map During Navigation

You can browse the map while navigating without interrupting the current route – you will still be guided through voice commands.

- To browse during navigation, simply touch the “map” (the screen) and the Map Browsing feature is automatically activated. During browsing, the map screen borders will turn orange until the **Back** button is pressed to return to the guide.
- Press the  button to return to on-screen navigation.

PLANNING A ROUTE

This section describes the route planning feature. This feature allows you to plan your route in advance, choosing multiple stopovers along your journey.

1. To begin navigation, select a location using the **Drive to...** feature (see "Choosing and Finding Locations" on page 44).
2. Select **Waypoint** to view the "Destination List", where you will see the location you just entered.



3. Press the **+** icon to add a stopover to your route. The "Choose stopover" screen appears:



4. Choose stopovers like your home or work addresses, a favorite, a point of interest, a recent location, or you can search for an address or pinpoint a destination on the map.
5. After adding stopovers, you can modify your trip using the following features:
 - Use the **+** icon to choose additional stopovers.
 - To change the order of the stopovers, select a stopover and then use the up and down arrows to move it up/down in the list.
 - Use the Trash icon to delete a selected stopover.

6. Once you have chosen your route, press the **MENU** button in the bottom right-hand corner of the screen. The following options are available:



- To begin navigation, press **Start Navi**. The display will switch to the navigation map.
- To simulate the planned route, press **Simulate**. The device will calculate the route based on a user entered destination, but not actually perform navigation guidance based on GPS signals. This setting is primarily used for preview or for checking various routes and turns.
- To calculate the route, press **Routing**. Once the route is calculated, the "Route Summary" will be displayed. Select an item from the "Route Summary" to display the "Turn by Turn" list. When you press (highlight) a turn, the system will prompt "Do you want to delete this waypoint?". Choose **Yes** or **No**. Press the button to view the route beginning with the highlighted turn.
- To save the route as a favorite trip, press **Save** (see "Favorites" on page 51).
- To return to the previous screen, select **Back**.

NOTE: When planning a route, you can select the **Waypoints** option to add or delete stopovers on your trip. When adding a new beginning or ending point, the system will not automatically eliminate stopovers. The unwanted stops must be manually removed by selecting them and pressing the **Trash** can icon.

MANAGING YOUR ADDRESS BOOK

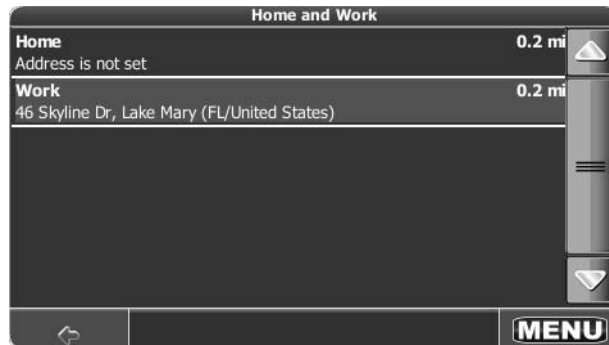
The Address Book allows you to save your home and work locations, as well as other frequent destinations for easy recall. After entering an address or searching for a POI, you can choose the **Save** option to bookmark your selection, eliminating the need to perform repeated searches.

To access your Address Book, select **Drive to...** from the "Main Menu", and then select **My Address Book**. The "My Address Book" screen will be displayed:



Home and Work

To access the "Home and Work" screen, press the **Home and Work** button.



If no home address has been set, you are prompted to set one. You can choose it by searching for an address through your current GPS position or by choosing a recently visited location. To

set the initial default address for work or home, press **Home** or **Work** and then choose one of the following options:



- To return to the previous screen, select **Back**.
- Select **Address** to open the "Find Address" screen and enter the address (see "Finding an Address" on page 44).
- Select **GPS Position** to bookmark your current position as your Home or Work address.
- Select **Recent** to choose your Home or Work address from a list of recent locations.

If the address is already set, press **Home** or **Work** to choose from the following options:

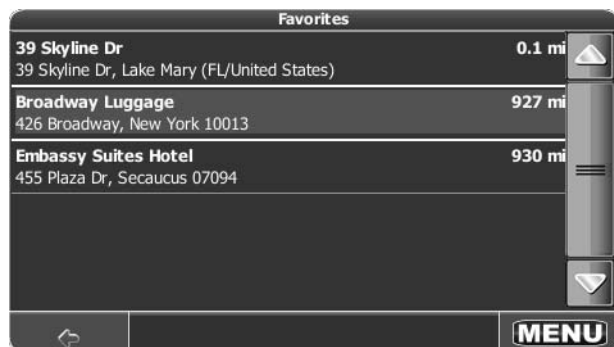


- To navigate to the location, select **Navigate**.
- To use the location for planning a route, select **Waypoint**.
- To change the bookmarked location, select **Edit**.
- To view the location on the map, select **On Map**.
- To return to the previous screen, select **Back**.
- To erase the current saved location, select **Delete**.
- To erase both Home and Work locations, select **Delete all**.

To modify or navigate to/from an address once it is saved, select the home or work address and then press the **MENU** button to select from available options.

Favorites

To access your list of favorites, press the **Favorites** button. The “Favorites” screen appears:



NOTE: Use the scroll bar and arrows on the right side of the screen to move up and down the list and view all entries.

Select an item and then press the **MENU** button to choose from the following options:

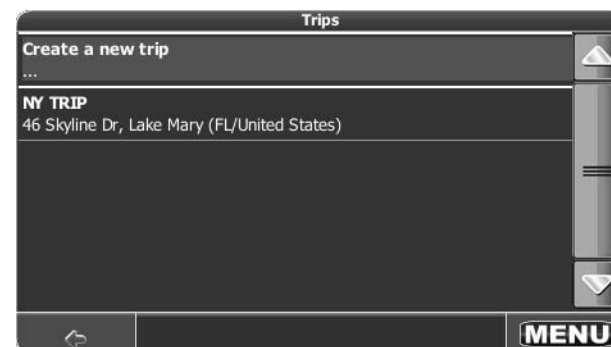


- To navigate to the location, select **Navigate**.
- To use the location for planning a route, select **Waypoint**.
- Press **Sort** to sort all entries into alphabetical order.
- To view the location on the map, select **On Map**.
- To return to the previous screen, select **Back**.
- Select **Rename** to go to the “Change bookmark name” screen and rename the selected bookmark.
- To erase the current saved location, select **Delete**.
- To erase all saved locations, select **Delete all**.

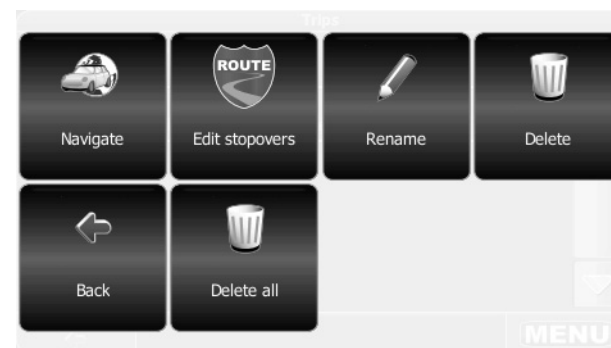
NOTE: All user information such as settings, bookmarks and recently visited locations are stored on the SD memory card and not on the device.

Trips

To access your list of saved trips, press the **Trips** button. The “Trips” screen appears:



Select a trip and then press the **MENU** button to choose from the following options.



- To calculate the route for the selected trip, select **Navigate**.
- To edit existing or add new stopovers to the selected trip, select **Edit Stopovers**.
- Select **Rename** to go to the “Change trip name” screen and rename the selected trip.
- To erase the current saved trip, select **Delete**.
- To return to the previous screen, select **Back**.
- To erase all saved trips, select **Delete all**.

SETTINGS MENU

When using the navigation module for the first time, it is recommended that you customize the system parameter settings. For example, regarding navigation, you can choose to avoid or allow toll roads or ferries or enable S.M.A.R.T. routing. You can also edit display settings, including 2D or 3D mode, day or night mode, map complexity, etc.

To get started, choose **Settings** from the “Main Menu”.



You can always press the  button to return to the previous screen.

General Settings

Select **General Settings** to modify the following options.



- Press **Language** to view the “Language” screen. Press the “USA” (English) icon and then select one of the following voice types for voice commands: English_US female (TTS), US English Female, US English Male

- Press **Set Time** to select the appropriate time zone from the “Time zone” menu (use the up/down arrows and scroll bar to view the entire list). Press the **OK** button to confirm and return to the “General Settings” menu.



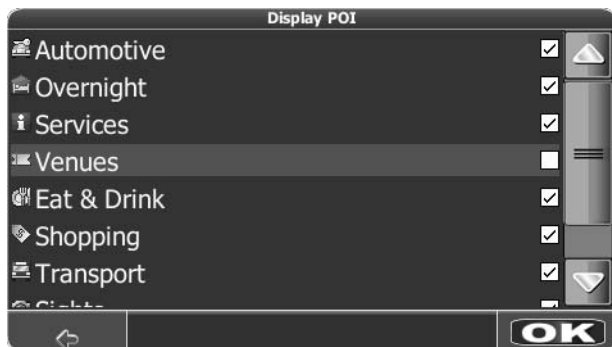
- Press **Miles/Kilometers** to change the system of measurement.
- Press **About** to view information about the application.

Map Settings

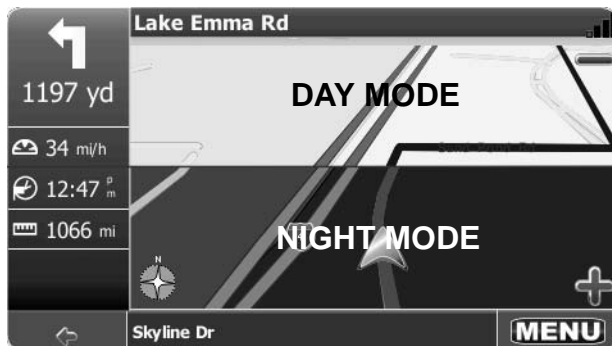
Select **Map Settings** to modify the following options.



- To select which and how many icons are displayed on the map, press **Display POI**.



- Check the boxes of any category you want to have displayed on the map. Uncheck those that should be hidden. Note that this will NOT affect any searches that you perform.
- To apply your settings, press the **OK** button.
- Repeatedly press the **Day/Night/Automatic** button to toggle between day and night modes. Choose **Automatic** to allow the mode to be chosen automatically based on the time of day.



- Select **Maps** to select the appropriate map (USA). If you have map data for different regions on your memory card, select the name of the current region. All available maps on the memory card will be listed.
- Press the **2D/3D** button to toggle between 2D and 3D display mode.
- Press to toggle the map display between **Track Up** and **North Up**.
 - Track Up**: This mode will display the map with the vehicle direction always pointing up. The map will rotate and move accordingly during navigation while the green arrow representing the vehicle stays up and still.
 - North Up**: This mode will display the map with North always pointing upward. The map will not rotate during navigation. The green arrow representing the vehicle will rotate and move according to the vehicle location on the map.

Route Settings

Select **Route Settings** to modify the following options



Table 1: Route Settings

| | | | |
|--|---|--|--|
| | Calculate route based on the fastest time. | | Calculate route based on the shortest distance. |
| | Use toll roads when calculating routes. | | Do not use toll roads when calculating routes. |
| | Use highways as much as possible when calculating routes. | | Try not to use highways when calculating routes. |
| | Use ferry travel when calculating routes. | | Do not include ferry travel when calculating routes. |
| | Enable Smart Routing (see "Traffic Avoidance Technology (Smart Routing)" on page 54.) | | Disable Smart Routing. |

Press each button to toggle between the options listed in Table 1.

Traffic Avoidance Technology (Smart Routing)

Traffic Avoidance Technology (Smart Routing) uses a massive quantity of data that has been compiled over many years to provide a 'rolling average' database of the speeds that traffic actually moves on any given road within the continental USA.

When you enter the settings screen of the software, you are asked to select routing options. The Fastest Time setting takes into account the posted speed limits of the various roads and streets along a route in order to determine the correct route. The Shortest Distance setting takes into account the actual distance of the route, without regard to the types of roads or streets or their posted speed limits.

While the Shortest Distance option is an obvious calculation, the Fastest Time setting can result in a route that is impacted by rush hour tie-ups.

Smart Routing considers the 2 year rolling average of the actual speed of traffic along each roadway and further considers hour of day and day of week.

In short, Smart Routing does for you what anyone with perfect local knowledge would do – selects a route that best avoids unpleasant traffic tie-ups.

Volume

From the “Settings” menu, select **Volume** to modify the volume of voice commands.



- Press the **+** button to increase the volume.
- Press the **–** button to decrease the volume.
- Press the **Mute** button to silence or resume the voice command volume.

NAVIGATION MODULE TROUBLESHOOTING

Table 1: Navigation Module Troubleshooting

| Problem | Cause | Corrective Action |
|--------------------------------|-----------------------------|--|
| I can't find an address | Address spelled incorrectly | Please make sure you have correctly spelled your entry. If you do not know how an address is spelled, simply enter the parts of the address about which you are certain - e.g. "Brook" for Brooklyn in New York. Then browse the results list and look for the address. Also make sure that the city in which you are looking for an address is correct. Sometimes the official postal address differs from the address you are looking for. In that case, search for a known address nearby and browse the map. |
| I cannot get a good signal | Poor antenna placement | If you have problems getting a satellite fix with GPS (you can see how many satellites are being received on the main menu at the bottom left), please make sure you are outside and the GPS antenna has good 'visibility' to the open sky. Some models also support an additional external active antenna. Please consult the hardware manual of your device to get further information on how to obtain a GPS fix. |
| The VM9022HDN stops responding | Unknown | Turn the unit off and back on. If this does not help, reset the unit by using a small metal object to press the RESET button. |

Limited Warranty

CD or Multimedia Radios/Headunits

DO NOT RETURN THIS PRODUCT TO THE STORE

Audiovox Electronics Corporation ("the Company") is committed to quality and customer service, and are pleased to offer you this Warranty. Please read it thoroughly and contact the Company at 1-800-323-4815 with any questions.

Who is covered?

The Company extends this warranty to the original retail purchaser of products purchased through an authorized Audiovox retailer in the U.S.A., Puerto Rico or Canada. This warranty is not transferable or assignable. Proof of purchase is required in the form of an original sales receipt.

What is covered?

The Company warrants that should this product or any part thereof, under normal use, be proven defective in material or workmanship within 12 months from the date of original purchase, such defect(s) will be repaired or replaced with a new or reconditioned product (at the Company's option) without charge for parts and repair labor.

What is not covered?

This Warranty *does not* cover the following:

- Damage incurred during shipping or transporting the product to the Company or a service center
- Elimination of car static or motor noise
- Defects in cosmetic, decorative or non-operative structural parts
- Correction of antenna problems
- Costs incurred for installation, removal or reinstallation of the product
- Consequential damage to compact discs, USB devices, digital media cards, accessories or vehicle electrical systems
- Damage caused by improper installation, mishandling, misuse, neglect, accident, blown fuse, battery leakage, theft or improper storage
- Products whose factory serial number/bar code label(s) or markings have been removed or defaced
- Damage resulting from moisture, humidity, excessive temperature, extreme environmental conditions or external natural causes

Please review the "Care and Maintenance" section of your Installation and Operation Manual for additional information regarding the proper use of your product.

Limitations

THE EXTENT OF THE COMPANY'S LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT PROVIDED ABOVE AND, IN NO EVENT, SHALL THE COMPANY'S LIABILITY EXCEED THE PURCHASE PRICE PAID BY PURCHASER FOR THE PRODUCT.

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Obtaining Warranty Service

- To obtain repair or replacement within the terms of this Warranty, call 1-800-323-4815 for the location of a warranty station serving your area.
- You must prepay the initial shipping charges to the Company. The Company will pay the return shipping charges for all warranted products returned to an address within the U.S.A., Puerto Rico or Canada.
- Please package the product securely to avoid shipping damage. We recommend using a carrier that provides tracking service to prevent lost packages. Lost or damaged packages are not covered by this warranty.
- Provide a detailed description of the problem(s) for which you require service.



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35

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